FEBRUARY • 1960

FIREMEN

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Save Those Exposures! — *see page 9*

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Fire Prevention Contest Winners - - - Page 12

Fire Prevention Demonstrations - - - - Page 15

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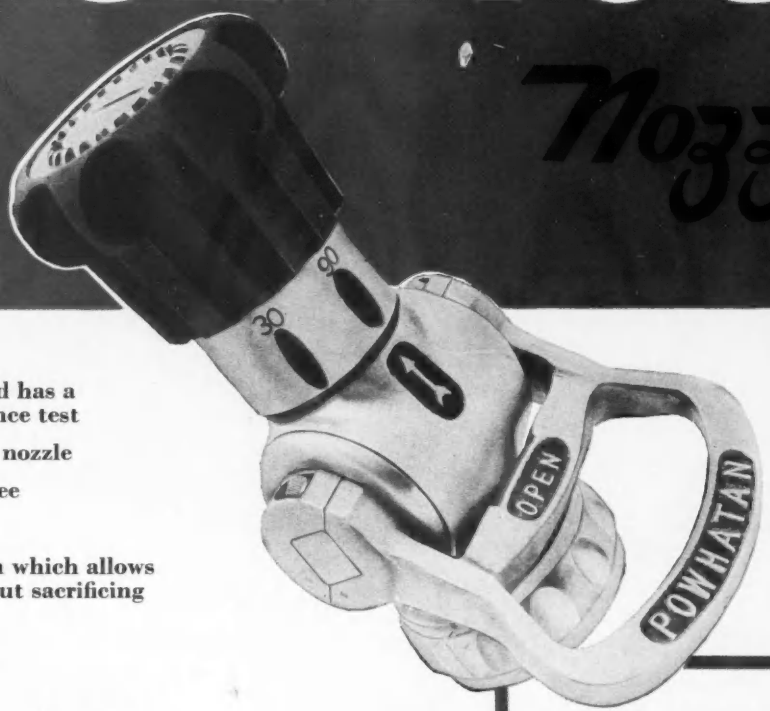

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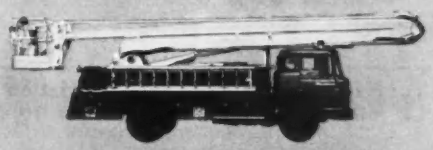

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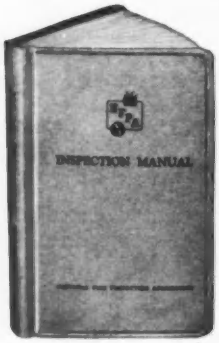

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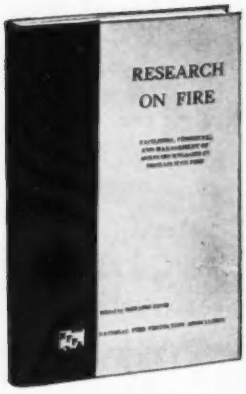

Research on Fire. A survey of research on fire providing a description of the facilities, personnel and management of thirty-nine agencies in the U.S.A. and sixteen in other countries which are engaged in fire research. An adequate picture of the kinds of work going on is presented. Cloth bound, 6 x 9 in., 184 pages, 100 illustrations, 1957. **$5.00**

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NFPA FIREMEN

Volume 27 Number 2

A monthly magazine published for the fire service members of the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Massachusetts.

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In many areas of the United States, local volunteer fire companies protect outlying villages and resort areas of communities which have paid fire companies. Often the relationships between the paid and volunteer fire companies are cordial. In other instances the cooperation is not all that it might be.

One of the most frequent complaints of the volunteers is that, when a call is telephoned to the central fire alarm operator, the paid fire companies are dispatched before the alarm is sounded for the volunteers, so that the paid companies make the longer run and arrive first at the fire to the discredit of the volunteers.

What seems to be ignored in these situations is the safety of the public, and the possible loss of life and property. Good practice would indicate that the nearest or first due fire company (paid or volunteer) should be dispatched at once, backed up by an adequate first alarm assignment. If the volunteer company is within a mile of the fire and the nearest paid company has three or more miles to travel the volunteer crew, if properly notified, probably will have water on the fire when the paid men arrive.

If there is friction between paid and volunteer fire companies this would seem to reflect upon the leadership of both groups. Much of the trouble occurs where there are separate companies for both types of organization, instead of one municipal fire department headed by a single chief who is responsible for the success of both types of companies. Of course, many volunteer companies consider it important to have their own chief rather than merely fire company captains. This difficulty can be resolved by having the volunteer fire chief as a district fire chief of the municipality in the area served by the volunteer company. This also provides representation for the volunteer company on the board of officers for the fire department and provides a direct link in the chain of command to the municipal fire chief.

Obviously, as communities grow and the work load of fire departments increases, some areas now under volunteer fire department protection will have paid companies established. However, this does not diminish the role of the volunteer, for each year dozens of new volunteer fire companies are organized throughout the country to keep abreast of the needs of rapidly growing suburban and rural communities.

The goal of every fire department organization should be to give the best possible fire protection in the area under its protection. A fire does not know the difference between paid and volunteer fire fighters and a little rivalry can be a good thing if conducted on the basis of friendship and mutual respect.

An important fundamental of fire fighting tactics is illustrated by this month's cover picture. It is this: when fire in the involved structure is too much for available manpower and equipment, principal attack should be concentrated on surrounding exposures.

This was carried out successfully in Modesto, California, on the night of November 26, 1959. Fire got a good start in a fruit packing warehouse, 530 feet long, 140 feet wide and only 30 feet high. Lack of a watchman, a fire detection or an alarm system allowed the fire to burn between 30 and 45 minutes before it was seen by a passing motorist. He drove to a fire station to report the fire and the Modesto Fire Department responded, commanded by Chief Jack Wemyss. The building was too heavily involved for successful attack, so heavy streams were put into operation to protect exposures. Several hours later the warehouse was destroyed by the fire, with loss estimated at $700,000. Damage, however, was kept to the building of origin, as the heavy streams did an effective job. (*Cover photo by Modesto Fire Department.*)

WARREN Y. KIMBALL, Managing Editor; PAUL R. LYONS, Editor; HENRY S. GERE, Advertising Manager; DIANNE KOFMAN, Editorial Assistant; SHIRLEY TOBEY, Fire Service Department; VIRGINIA STILES, Advertising Department.

HOW FIRE DEPARTMENTS GROW

from volunteer . . . to call . . . to fully-paid

From a recent address by Warren Y. Kimball, Managing Editor, FIREMEN magazine.

VOLUNTEER fire departments have developed on a self-help basis. In small communities, when fires or other emergencies occur, everyone donates whatever time and effort are needed to cope with the situation. No one gets paid.

This system works very well when calls are infrequent and do not seriously interfere with the volunteers' regular employment. However, nowadays there might be a great influx of people moving into the community that has a volunteer fire department. In general, these people are used to having municipal services including fire protection. They feel somewhat as outsiders and seldom make much contribution of time or effort to the volunteer department.

With the increase in population there is an increase in fire alarms. The volunteers are called more frequently from their work to fires in properties of people they do not know personally and who give very little direct support to the fire department. Gradually, faithful members who used to make every fire find that they can no longer do so. They have to begin to choose between their regular employment and being volunteer firemen. Added to this is the increased traffic congestion in the community. A few years ago it was only a matter of a few minutes for the fireman to drive his private car to the fire station or to a fire; now it is a serious undertaking.

The result of all these factors has been that when communities pass from 5,000, to 10,000, to 20,000 population the problems of manning fire departments entirely with volunteers become more serious. Fire chiefs find that at times they have excellent turnout, but at other times, particularly during weekdays, they may be lucky to have enough drivers for the apparatus.

Where the volunteer fire companies are active and strongly organized they frequently have sufficient influence in the local government to withstand the criticisms that are directed toward them and many volunteer departments have survived in communities of upward of 100,000 population. Each community must meet its own problems but an understanding of the factors involved helps those responsible in reaching the best solutions.

One fact should be clearly understood; regardless of the type of fire department, approximately the same number of men is needed to get proper manning. Members of the NFPA Committee on Fire Department Organization seem pretty well agreed that for first alarm response to building fires in a residential district, there should be at least a dozen men responding with the apparatus plus a chief officer. To get this response at all hours, day or night around the clock, 168 hours a week, experience shows that a fire department or fire company must have approximately 50 men, that is, four men are needed to cover each position.

Now, when people start asking for a paid fire department are they ready to hire 50 officers and men on a permanent basis? The average salary and cost per man will be at least $5,000 per year and this means a $250,000 payroll, disregarding apparatus, equipment, stations and operating cost. In most places the average payroll is nearer $6,000 per man, including officers' salaries, overtime, uniforms, paid holidays and vacations. This means a $300,000 payroll to provide a minimum 12-man response to first alarm fires. You can begin to appreciate the actual cash value of the service rendered by the unpaid volunteer departments.

Now, if the 50-man figure frightens you, let us put it another way. Today, most paid fire departments are working a 56-hour week. For this, 10 men are needed to provide 3 drivers on duty round the clock, taking into account vacations and sick leave. This means a $50,000 to $60,000 payroll just to have 3 paid drivers on duty without any fire fighters. Now, assuming we have 3 paid drivers on duty, they can take the major apparatus to fires and keep the apparatus and stations clean. They will operate the pumpers and aerial ladder but other members will be needed to do most of the actual fire fighting.

A number of good volunteer departments have found that their greatest manpower problem is during the daytime, so rather than trying to provide three shifts of paid men to man the apparatus around the clock, they hire a paid crew to work weekdays when the volunteers are at their regular jobs. The hours of the permanent men are arranged so that each takes his turn at bunking in, serving as desk man at night. The daytime crew maintains all the equipment and quarters, relieving the volunteers of much time-consuming labor. The paid crew is commanded by a company officer who is in charge at fires until a chief arrives.

Some of our modern volunteer departments supplement their paid day force with a schedule whereby the volunteers are divided into crews of an officer and four or five men who each bunk in one or two nights a week, according to the number of members available. This provides a prompt response of apparatus, including ambulance, equal to a paid company and reduces the public demand to replace the volunteer department.

Of course, it does not provide the full first alarm response but other members respond from home to complete the assignment. It is common practice in some metropolitan areas to dispatch two volunteer departments on every fire call and if the dispatcher does not receive an acknowledgment by radio or phone in three minutes indicating the apparatus has responded, he fills in with the next company.

Of course, the best volunteer systems use county or regional dispatchers to handle all fire calls and have running card assignments up to fourth alarms. This may also include mutual aid with the nearest big city.

Thus far we have not discussed the call fireman. Unfortunately, he is not generally recognized as a professional and has lost his standing as a volunteer. There are two general systems of paying call firemen. One is by an annual salary with members required to make a certain percentage of alarms and the other system is on a basis of an hourly rate for alarms and drills. Some departments use a combination of the two methods. In other departments, in addition to the regular call firemen, there is a reserve list of volunteers to fill vacancies. If a volunteer member has a better attendance record than one of the paid call firemen he may be appointed as a regular call man. Some departments get in trouble by placing call firemen under Civil Service so that it has been almost impossible to get rid of them even when they fail to show up regularly at fires and drills. Rates of pay for the first hour or fraction of each hour vary from $1.00 to $4.00 or more in different departments. In some towns the rate per hour is tied to a cost of living index for town employees so instead of pay being $1.50 per hour, the rate may for example be $1.88 per hour.

If anyone thinks that merely changing from a volunteer to paid call system is going to solve the manpower problem, he is likely to be disillusioned. In fact, a great many chiefs are most unhappy over the poor attendance and lack of interest shown by their call firemen. Daytime response of these men who earn their living at other jobs is often even worse than in certain volunteer departments.

However, this does not need to be so. The trouble is that the rates of pay and standards for call firemen have not kept pace with inflation and cost of living. A man cannot afford to put the fire department first for say $50.00 a year or about $1.00 a week. He can't run away from his regular job.

Previously we stated that it takes approximately four men to cover each job around the clock for a full-paid, call or volunteer fire department. If we use full-paid men, the cost of manning any one position on the apparatus will be upward of $20,000 per year. Supposing a community finds that it can no longer meet its fire department manpower requirements with unpaid volunteers. It might be able to recruit 50 dependable call men at an average pay of $500 per year. This would be one-tenth of the cost of a full-paid outfit or $25,000 per year. The call men would be expected to be qualified fire fighters and would agree to be available for answering alarms during certain definite periods. It will not do to have 35 men show up at a small night fire and then get only 4 men at a daytime working fire. In some smaller towns $2.50 or $5.00 per week might be a reasonable fee for call men. In larger towns the salary might be higher. Paying only on the basis of calls answered is not good practice, has led to the setting of numerous brush and building fires and does not provide the uniform basic manpower required. In some towns an annual salary of $100 to $200 is used and this covers the first hour's work at all alarms to which the member is assigned. Call chiefs and call officers generally get more pay than the rank and file members.

Usually, once the volunteer system is abolished, the chief becomes a full-paid town employee appointed by the government and not selected by the members. Next, paid apparatus operators are employed for the major pieces of equipment. As pointed out, to have three drivers on duty there must be 10 paid men. When we get the paid drivers we can reduce the call force by 10 men, provided we are manning the same amount of apparatus on first alarms. If we add more companies or apparatus we will need more men.

The next step in the growth of the part-paid department generally comes when the department must handle numerous still alarms for grass, brush, auto fires and emergency calls which do not require a full first alarm response of apparatus or call men. It is not desirable to send out the major apparatus with two or three paid drivers on duty and leave the community unprotected for structural fires. Accordingly, most towns have one or two small pumpers, squad or booster trucks with several additional paid men. These trucks answer all types of calls, both structural and outside.

By this time we find that our growing fire department has 4 to 6 paid men on duty. This is not enough to provide proper first alarm manning but we need an officer on duty with each shift. The paid men are almost always at the fires before the call men or any volunteers who may have been retained. They resent having a call or volunteer officer show up to give orders after the real work has been done. If the companies are in several stations there will eventually be an officer on duty in each station. This also makes for promotions and development of future chiefs. In some cases the station officers have different ranks and for a time one may be a deputy chief who is in charge in the absence of the chief.

One of the solutions employed in residential suburbs with part-paid departments is to use off-duty, permanent fire fighters as paid call men for response to structural fires. Still alarms making up the majority of calls are handled by the on-duty crew but off-duty men are paid as call men to obtain full company manning for all building fires. Finally, the city grows to require full on-duty company manning for all companies.

Thus we have related the various stages of development from volunteer to full-paid fire departments. In the 19,000-plus fire departments in the United States you can find every stage of this evolution.

But the important thing is the responsibility the fire department has assumed to man its apparatus at any time, day or night, winter or summer. Thousands of volunteer departments are doing this most successfully because they are genuinely interested and enthusiastic. When, however, the public sees apparatus responding with one or two men and with delayed response there may be a demand for a change!

GRAND AWARDS!

Municipalities

Louisville, Kentucky

Vancouver,
British Columbia

Industrial Division

Montreal Transportation
Division
Montreal, Quebec

Government Division

United States Post Office
Chicago, Illinois

Military Division

Fort Sam Houston
Texas

Myrtle Beach Air Force Base
South Carolina

U. S. Naval Station
Norfolk, Virginia

RCAF Station
Falconbridge, Ontario

WINNERS OF THE

1959 FIRE PREVENTION CONTEST

LISTED above are the Grand Award winners of the eight divisions of the 1959 Fire Prevention Contest sponsored by the NFPA Fire Prevention and Clean-Up Campaign Committee. They were selected by the Board of Judges as the outstanding entries in each of the eight divisions. The contest brought 1,541 entries from the United States and Canada and from military stations overseas. A complete list of the winning entries together with their ranking on a national basis and population class may be obtained from the NFPA Public Relations Department.

As mentioned in past editions of FIREMEN magazine, the quality of contest entries has improved significantly each year. This, naturally, makes the task of judging more difficult. It is vitally important, of course, that evaluation of entries be done fairly and impartially. Accordingly, for the contest judging, the NFPA follows a procedure similar in the selection of NFPA committees: that is, to gather a representative group of persons, give them a few basic rules for the judging and then let them arrive at their own independent decisions of the ranking that should be accorded to the contest entries.

For the 1959 contest the Board of Judges included U. S. and Canadian representatives, fire service officers, and a representative from industry. (See page 14.)

In the process of judging, each member of the board first studies the blank submitted with each entry. For municipalities, this entry blank is divided into six categories by which the year-round fire prevention program can be given a total score of 100 points. These categories are: organization for fire prevention (20 points), year-round fire prevention (30 points), Fire Prevention Week (20 points), other special campaigns including clean-up (20 points), and evaluation (10 points).

For industry the entry blank has five categories: year-round inspections (20 points), fire brigade activities (20 points), year-round employee fire control education (20 points), Fire Prevention Week (25 points), and results (15 points).

The government and military entries are also judged on a year-round basis.

Each entry blank should be completely filled out by the person sending the entry but, unfortunately, in a number of cases, this is not done. Most contest entries are submitted with books containing information to support the statements made in the entry blank. Usually the contest judges read the entry blank and then look through the book for documentary or photographic evidence that will verify those statements. Then each judge assigns a point value to each entry according to his opinion of the quality and accomplishments of the fire prevention program and how it compares with the other entries. When the judging is completed these point scores are totalled and compared, the top winners are chosen, and the other entries are given appropriate ranking. When there is a tie in the point totals awarded to entries, or when there is disagreement as to the best entry, the judges must resolve

their differences and select the winner. Every entry submitted to the contest is studied and given a point rating and ultimately receives a position of rank in its particular division.

As mentioned previously in FIREMEN magazine, one of the weaknesses that shows up in entries from municipalities is that the fire chief or the fire department may be the sole initiating force in the fire prevention program. The first category of the entry blank probes for this weakness by asking what organizations in the municipality actually took part in the planning and carrying out of the fire prevention program. In some communities the fire department has not yet won the support of municipal officials, civic organizations, and other representative groups to effect a sound fire prevention program. Generally, when a fire department has shown the skill in getting such support in the community it also shows outstanding performance in fire department activities such as thorough inspection programs, public education, work with industry and business, Fire Prevention Week, and other campaigns. To accomplish all of these objectives the municipality, the industry, the military unit, or the governmental agency, has to have a sound appreciation of the value of fire prevention and an enthusiasm to work for definite goals through the year. To aim for, and reach these goals and to win the contest's top award is no easy achievement.

The Grand Award is a tribute to the winning municipality, industry, military unit or governmental agency, for outstanding accomplishments. Recognition is also given to those entries which placed high in the competition. For a long time, however, the NFPA Committee on Fire Prevention and Clean-Up has realized that *every* entry is deserving of some recognition. So, this year, for the first time, a certificate of entry has been issued to all contestants who presented evidence of a satisfactory year-round fire prevention program.

In the United States the following municipalities placed in the top ten positions in the national ranking:

Louisville, Ky., Philadelphia, Pa., Memphis, Tenn., Providence, R. I., Martinsville, Va., Bloomington, Ind., Chicago, Ill., Boston, Mass. and New York City, N. Y. (tied for eighth place), Portland, Me., Hartford, Conn.

In Canada the top ten on a national ranking basis are:

Vancouver, B. C., Hamilton, Ont., St. Thomas, Ont., Regina, Sask., Ottawa, Ont., St. Catherines, Ont. and Kitchener, Ont. (tied for sixth place), Ocean Falls, B. C. and Schumacher, Ont. (tied for seventh place), Nelson, B. C., Arvida, P. Q.

Mr. Percy Bugbee (center), NFPA General Manager, is surrounded by hundreds of contest entries as he studies one of them.

WHAT WAS DONE IN LOUISVILLE

Louisville's Fire Prevention Bureau spearheaded the year-round fire prevention campaign to win the 1959 Grand Award for U. S. municipalities. In cooperation with many civic organizations, here is what was accomplished:

Year-Round Fire Prevention included 13,305 dwelling inspections and 19,432 other inspections by 12 full-time inspectors of the Bureau and the fire fighters. In the city's schools, members of the fire department instructed janitors and other employees on how to correct fire hazards.

- Children's Education included a baby-sitter training class for junior high students sponsored by the women of two civic groups while . . .
- . . . Sparky used pictures and demonstrations when talking to the elementary school children about fire prevention.
- Fire department members took Boy Scouts on "dry run" fire inspections in local civic buildings. In addition . . .
- . . . a Junior Fire Marshal was elected in each school. The Fire Prevention Bureau presented badges to him and his assistant inspectors. Louisville also aimed at

Industry and Business where year-round fire brigade training was conducted in addition to a specialized five-week course offered free four times a year to industrial, retail and institutional personnel.

- Retail businesses also participated by donating window space, marquees and billboards to spread the word of fire prevention. Retail inspections were planned by . . .
- . . . a Retail Committee headed by a local merchant as chairman. In recognition of their outstanding cooperation . . .
- . . . plaques were awarded to many local merchants by the Fire Prevention Council.

Institutions such as hospitals, nursing homes, etc., were contacted by the fire department to develop a Fire Emergency Plan with:

- Pre-determined duties for each employee concerning drills, evacuation procedures and use of first-aid fire fighting equipment.

Publicity before and during Fire Prevention Week included letter "stuffers," letter openers and special neckties all bearing the fire prevention message.

- A Victory Luncheon was sponsored by the 176-man Fire Prevention Council which invited those who cooperated in the campaign.

Clean-Up Week featured many novel ideas to clean and fix up the city, including:

- Litter bags donated by a local merchant and imprinted with his ad were distributed in addition to . . .
- . . . caps with Clean-Up Week and the date printed on them . . .
- . . . matchbooks, stickers and posters which urged the citizens of Louisville to clean up the city.
- Miss City Beautiful, a local high school senior, toured the city with her Clean-Up Week message.

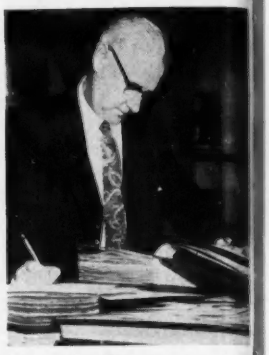
Christmas season brought repeated messages from the fire department on the safety measures to be taken when lighting a Christmas tree, where to place it and how to dispose of it.

BOARD OF JUDGES FOR 1959 FIRE PREVENTION CONTEST

William D. Buck, president, International Association of Fire Fighters, Washington, D. C.

A. Leslie Ham, chief counsel, Canadian Underwriters' Association, Montreal, Quebec.

Allen L. Cobb, Director of Industrial Safety, Eastman Kodak Company, Rochester, N. Y.



Lester S. Harvey, president, New Hampshire Insurance Company, Manchester, N. H.

In addition, special recognition awards were voted to certain entries which had not qualified for competition in any of the major divisions. These awards went to:

The State of Tennessee, Cook County, Ill., Cuyahoga County, Ohio, Erie County, N. Y., Montgomery County, Md., Prince George's County, Md., St. Louis County, Mo., Halton County, Ont., Province of Alberta, and Province of Quebec.

A similar award was given for an entry submitted by Chief Fire Officer E. L. Hanlon showing the fire prevention program for the Government of Trinidad and Tobago Fire Services Department. Ford Motor Company and American Cyanamid Company also received recognition for their strong support of the 1959 contest.

Edward F. Deignan, 2nd vice president, International Association of Fire Chiefs, Elizabeth, N.J.

R. A. W. Switzer, Assistant Dominion Fire Commissioner, Ottawa, Ontario.

WHAT WAS DONE IN VANCOUVER

The Vancouver Fire Department sponsored the fire prevention campaign which won the 1959 Grand Award for Canadian municipalities. Several other civic organizations helped to plan and participated in the campaign which featured:

Year-Round Fire Prevention including dwelling inspections which began during the summer and inspections of schools, hospitals, theaters, etc.

- Forty-six wood frame schools were inspected to bring them up to NFPA standards. As a result . . .
- . . . the City Council voted $588,000 to remove fire hazards from them.
- Children in 86 schools competed in a fire prevention poster contest and were shown . . .
- . . . displays, films and demonstrations by fire department members.

Industry and Business also were brought into Vancouver's campaign to prevent fire.

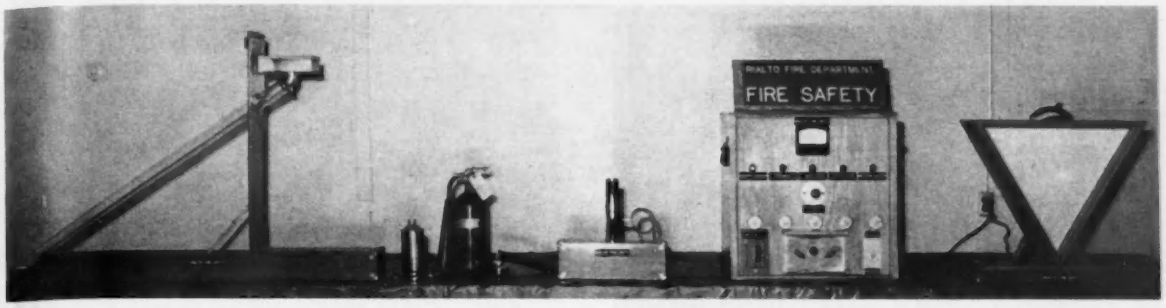
- The fire department conducted its "Chemistry of Fire Demonstration" for numerous industrial and business groups while . . .
- . . . industrial employees received training in fire fighting techniques and actually used these methods on the spot.
- Courses in fire prevention were given to industry, commerce and operators of apartment and lodging houses.
- Retail businessmen helped during Fire Prevention Week by displaying messages and demonstrations in windows, on billboards and marquees and by . . .
- . . . signing 5,000 cards pledging to remove all fire hazards from their stores.

Publicity for fire prevention was highlighted by a weekly column in the local newspaper written by a lieutenant in the fire department, entitled, "An Ounce of Prevention."

Clean-Up Week was a highlight of the annual Spring Clean-Up campaign and featured:

- Fire prevention demonstrations by the fire department and . . .
- . . . displays in stores, on billboards and marquees urging Vancouver's citizens to . . .
- . . . clean-up the litter found in their city during this campaign which was conducted by the Litter Control Committee.

Christmas tree hazards were pointed out by the fire department to insure safer lighting and electrical practices as well as placement and disposal of the trees.



Complete demonstration kit used by Captain Anderson in fire prevention lectures. (Left to right) vapor travel unit, container for gasoline, CO_2 vapor gun, fire extinguisher, electrical panel board and fire triangle.

USEFUL KITS FOR FIRE PREVENTION DEMONSTRATIONS

Part II
Continued from last month

This report was digested from a booklet prepared by Capt. Ira A. Anderson, Fire Prevention Officer, of the Rialto, California, Fire Department. Capt. Anderson has shown his demonstration to many West Coast meetings and because it was received enthusiastically he submitted it for the readers of FIREMEN *magazine. Shown under the illustrations on the following pages are portions of Captain Anderson's prepared talk for each unit of demonstration equipment. Readers may want to use these excerpts as a guide in preparing their own talks for teaching fire safety. (See January, 1960, issue of* FIREMEN *magazine — Ed.)*

THE adage — "One picture is worth a thousand words" has been changed in our fire department. We now say, "One *demonstration* is worth *thousands* of words!"

This has been proven to us many times since completion of our table top "Fire Safety Demonstration Equipment." No previous fire department activity has had such a stimulating and encouraging effect on our public relations and fire safety program. We are pleased to describe the construction and use of this equipment for readers of FIREMEN magazine.

Our demonstration equipment has four basic units: a fire triangle, an electrical panel or "box," a vapor explosion tube, and a vapor travel tube. After talking with our Chief, Lorne B. Eastward, Fireman Robert Downs of this department and I designed and built the equipment, but we must also give credit to other members of our department and many friends in the fire service of this area who gave us ideas and suggestions. Each unit was made from standard parts and materials available through most electrical, hardware and lumber dealers.

Lettering on the face of the triangle — *fuel, heat, oxygen, fire,* — is completely invisible until the lights are switched on. The face is translucent, one-eighth inch thick plastic with the lettering on the inside.

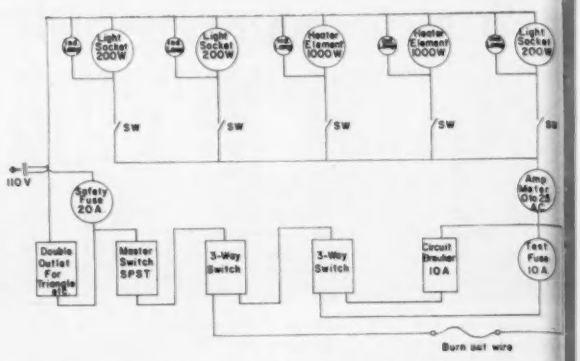
Under each bulb in the "fire" section is a flasher, which can be bought in any electrical store. All six of the colored center "fire" bulbs flash individually at three to five second intervals, thus simulating the glow of fire.

The cord from the triangle is plugged into a double electrical outlet in the rear of the electrical panel. The panel in turn is plugged into a wall outlet. Thus we have only one cord from the table to a source of electrical power.

Our electrical panel or "box" has ample depth from front to back (12½ inches O.D.) to accommodate the components and to serve as a storage space for fuses, electric cords, "burn-out" wires, screw driver, pliers, and miscellaneous supplies. Another reason for this depth is the heat that comes from the light bulbs and heating element when the unit is in use. This heat must be dissipated by adequate ventilation, so we baffled the wood surfaces with lightweight sheets of aluminum and cut holes for ventilation through the center shelf and across the top of the rear door to dissipate heat. When the unit is in use we leave a rear compartment door open to permit circulation of air.

A large ammeter (ours is four inches across the face) will let your audience see the indication of change in current. The electric "load" is supplied by four

"We have simulated in this panel box the actual electrical requirements of your residential lights and appliances. As we turn on the different appliances indicated by each switch (point to labeled central front switch area) you will see that this ammeter needle will indicate the amperage or amount of electric current flowing in our circuit. A protective device called a "fuse" or "circuit breaker" is in our electric circuit to stop or turn off the flow of electricity in the event of overload and excessive heat. Without this protective device the heat would soon reach an ignition temperature and the insulation of the wire would burst into flame. The appliance itself can be involved and burn."

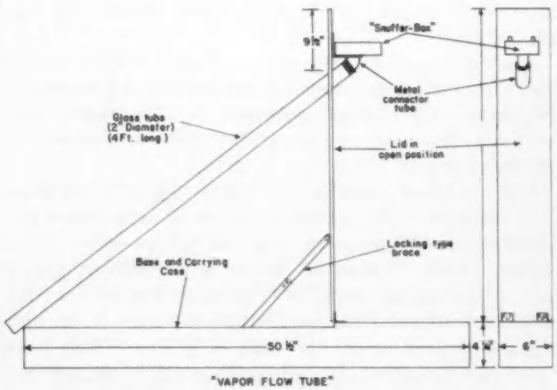


Electrical panel board calls for more complicated wiring but provides an excellent demonstration. Here is the wiring diagram. Note burn-out wire on front of panel in photo at left. All of Captain Anderson's demonstration equipment is arranged for easy storage of essential tools and materials and for easy carrying. This panel board includes a removable lid that covers the front during transportation or storage.

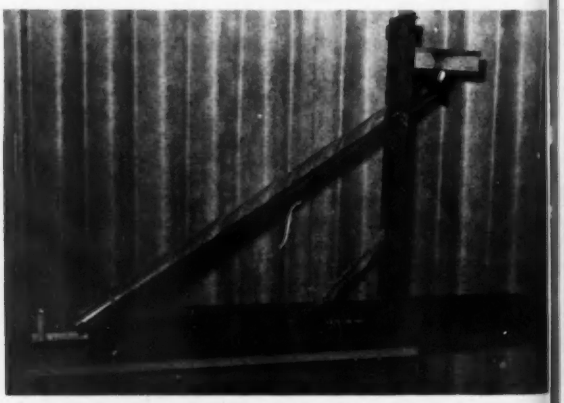
200 watt electric bulbs and a 1,000 watt electric heating element that mounts into an ordinary screw type bulb receptacle. These bulbs and the heating element simulate the electrical load in an ordinary home circuit when conventional appliances are turned on.

If one 1,000 watt heating element and the four 200 watt light bulbs do not burn out the fuse, we remove one of the bulbs and insert another 1,000 watt heating element in its place. This will increase the load sufficiently to blow the fuse, operate the circuit breaker, and the "burn-out" wire — each individually.

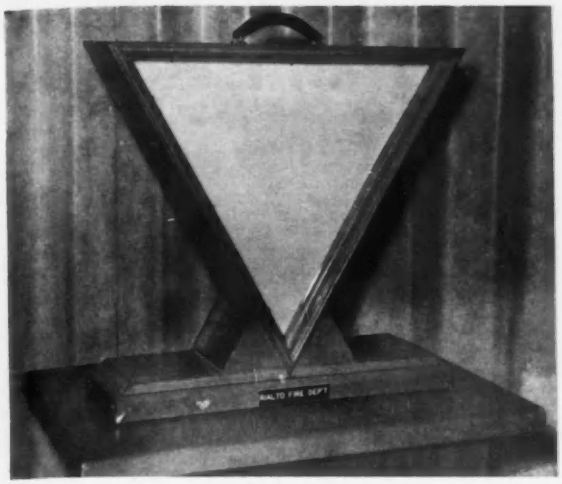
By simple switching, as indicated on the circuit diagram, we can place our "fuse," "breaker," or "burn-out" wire in the circuit. The "burn-out" wire will show no signs of overload for a moment or two, then there will be a trace of smoke. The smoke thickens and the wire turns red-orange and bursts into flame. For our "burn-out" wire we use one side of an electric shaver cord, separating it between two parellel conductors. (Do not strip the insulation as it is a necessary part of your demonstration.) This particular shaver cord wire is designed to carry only three or four am-



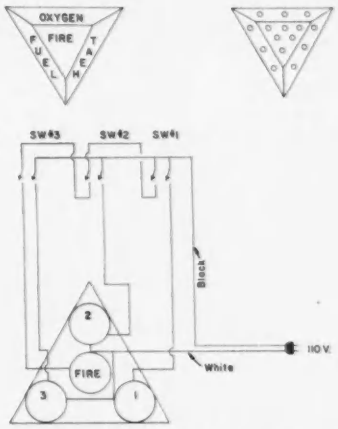
Vapor flow tube also is constructed of simple materials. Candle is placed at lower left of glass tube as shown in photo at right, thus providing ignition source for vapors that flow down the tube. Base of the unit serves as carrying case.



"This metal box has a tight-fitting lid. The box is connected to this glass tube by a metal tube with an air-tight fit. At the lower end of the glass tube is a lighted candle. Now we place a wad of gasoline-soaked cotton waste into the metal box at the top. At this moment gasoline vapors are traveling down the glass tube and will soon reach our candle flame. (It now ignites and flashes back up the glass tube to ignite the wad of cotton waste.) There, now, you saw the vapors ignite and flash back up to the source, the gasoline-soaked wad of waste. Now we place the lid on the metal box and you will see that the fire is extinguished — the 'oxygen' side is removed from our fire triangle!"



"We have here a 'fire triangle' that shows the components of fire. Three elements are necessary to kindle and sustain a fire. One, there must be something to burn. We indicate this on one side of our triangle by the word 'fuel.' (Turn on 'fuel' switch.) The second element required is 'heat.' (Turn on 'heat' switch.) Now, what do we actually mean when we say 'heat'? There is heat in this room right now — perhaps a temperature of 80 degrees. But we have no fire even though the other elements necessary to a fire are present. Why? Because there is not sufficient heat. However, raise the temperature in here to 500 degrees and most everything in the room will burn.



Wiring diagram of fire triangle. Colored bulbs used for triangle sides are: oxygen (7½-watt, orange); fuel (10 watt, green) and heat (10 watt, blue). Each side of wood frame of triangle is made of ¾-in. white pine, 24 inches long, 5½ inches wide. Wood base measures 24 by 6½ by 1⅝ inches. The six bulbs in center triangle are inserted on top of "blinker wafers" to represent fire. All switches are double pole, single throw type.

"Element number three required to complete our fire triangle is that of 'oxygen.' (Turn on 'oxygen' switch. The central 'fire' area of the triangle now lights. In a moment or two, after the flashers under the bulbs warm up, the entire fire area will intermittently increase and diminish in brilliance and color and will closely simulate the glow of combustion!)

peres, so you can see that it will not withstand the 15 or 20 amperes that we apply for demonstration purposes.

A sheet of aluminum behind the "burn-out" wire protects the wooden face of the panel from heat when the wire burns away. The lower edge of this aluminum sheet is bent out and up to receive the wire fragments and any hot residue from the insulation as they drop. Directly behind the "burn-out" wire on the face of the aluminum sheet is a small green indicator light that shows when electrical power is being furnished to the panel box. A main switch in the rear storage compartment controls the entire unit. When this switch is on and the green light is illuminated, you know you are ready for the demonstration.

Our "blow-out" fuse has 10 ampere capacity. Our "breaker" was rated at 15 amperes when purchased but we reduced its capacity to probably 11 or 12 amperes by disassembling it and grinding the "trigger" release mechanism to release at this lesser current flow. If you can obtain a "breaker" rated at 10 amperes, by all means, use it!

Our master safety fuse in the panel box is rated at 20 amperes so that we will not accidentally damage our ammeter by loading it beyond its 25-ampere capacity. We usually draw 18 to 19 amperes with complete load on our panel box circuit.

The vapor explosion tube is a 12-inch length of 1½-inch water pipe turned smooth on the outside. A plug is welded into the bottom end and the tube is chrome-plated overall for durability and appearance. A hole was drilled in the side and tapped with threads to accommodate a spark plug. One end of the wire has a snap-on catch to fit the top of the spark plug and the other end is fitted with a "banana plug" to fit the high voltage supply receptacle mounted on the base. A compartment is at the rear top of the base to store and transport the metal tube and wire.

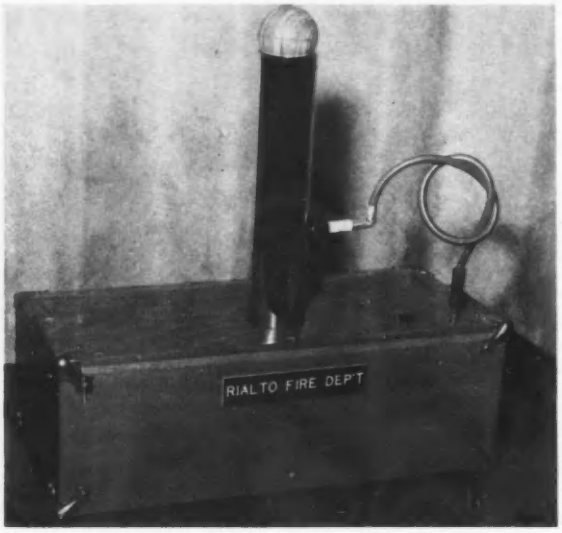
All components are mounted in the base which is simply a box 6 inches high, 8 inches wide, and 16 inches long. The doorbell switch button for operating the unit is mounted inside the storage compartment near the top edge. The top of the base-box is screwed down for easy removal to service the unit and change the battery. We prefer to use a battery rather than reducing power from the 110 volt line with a 6 volt transformer.

This tube will demonstrate the energy in one single drop of vaporized gasoline. The gasoline can be introduced into the tube by dropping a tiny amount from an eye dropper, or by an atomizer or small hand-operated spray gun such as used for insect repellents.

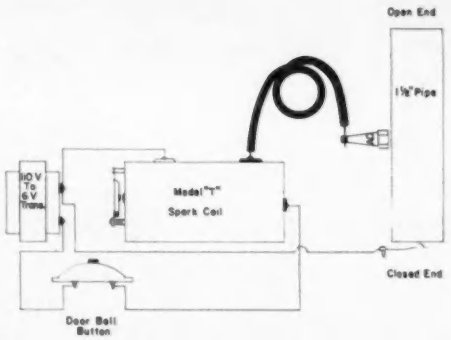
When the tube is charged with gasoline vapors and placed in the base with the spark plug wire attached, insert a sponge rubber ball into the open end of the tube. This ball should fit snugly after it is pressed into place. Now, press the doorbell switch and detonate the gasoline-air mixture in the tube.

The glass tube (be sure it is Pyrex) is just over two inches in diameter, four feet long, and has a flared upper end. The tube is joined to the "snuffer" box connector tube by a wedge or taper-shaped rubber gasket. The glass tube pressed up snug to this gasket gives an excellent air and vapor tight joint.

The "snuffer" box is of metal, two inches deep, four inches wide, and eight inches long. It is fastened to the base lid by two single iron brackets and bolts. The metal tube that joins the snuffer box and the glass



"This we call the 'vapor gun' or the 'gasoline bazooka.' It consists simply of a metal tube with the lower end closed off. In the side is an ordinary spark plug. A battery and an ordinary Model 'T' Ford coil inside this box give us a spark of approximately 16,000 volts across the points of the spark plug. We can



Vapor gun uses spark plug, 110 to 6 volt AC transformer, spark coil, door bell button and short length of pipe. Ignition of vapor sends ball flying upward. Particular care should be taken with this and every other flammable liquid demonstration.

show you the power of a drop of gasoline by placing it in the tube with this atomizer — a simple spray gun.

"We now insert this sponge rubber ball into the top opening of our metal tube and see what happens when we ignite the vaporized drop of gasoline, by sending a spark across the points of the spark plug." (Depress the push-button or switch now and the ball bounces from the ceiling back to the floor and reciprocates several times.)

tube is ordinary brass, chrome-covered sink drainpipe. The metal cover for the snuffer box is tight fitting and excludes air when extinguishment is required.

A convenient source of ignition for this unit is a candle. We place ours in a small metal pan that just fits under the lower end of the glass tube. This allows the vapors to flow from the end of the tube and contact the flame without the possibility of dissipating and spreading in many directions across the table top.

Several words of caution pertain to this demonstration:

1. Be sure all joints are air (vapor) tight from the snuffer box to the top of the glass tube. (The metal connector tube is soldered or flanged and bolted to the bottom side of the snuffer box.)

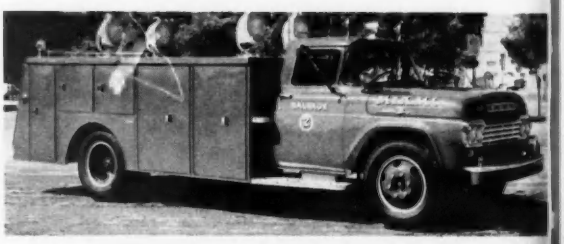
2. Be sure to use a rubber or similar stopper in the lower end of the glass tube when not demonstrating it. This is very necessary if your source of ignition is extinguished during the first flash up the tube and the gasoline vapors continue to flow down the tube into the pan and out across the table top. If this happens, you can encounter an embarrassing situation when you re-ignite your source of ignition!

3. Be sure to clean the inside of the glass tube before each demonstration by forcing a clean rag through it. Soot and carbon deposits will interfere with the flow of the vapors if this is neglected.

Regular gasoline is sufficient for this demonstration. Be sure that you first ignite the candle or source of ignition and that you place the rubber stopper in the lower end of the glass tube.

Just the moment you have placed the soaked waste in the snuffer box, remove the stopper from the lower end and be sure your pan with source of ignition is correctly in place. In a moment or two the invisible vapors will reach the flame and flash back up the tube to the soaked waste, igniting it. Simply close the snuffer lid to extinguish. Open it again and the vapors (now visible with mingling smoke) will again travel down to the candle flame and flash back up as before. Ours will usually operate several times from one soaking of the waste.

Oh, yes! One piece of fire prevention equipment that you must always have on the table during your demonstration is a fire extinguisher!



New Salvage Truck

THE fire department in Miami, Florida, recently put into service this salvage truck which will respond to all first alarms in the high value districts and on special call in other districts. Manufactured by Reading Body Works, Inc., Reading, Pennsylvania, it features a two-ton Model FC60C Ford chassis and carries more than 100 different items of salvage equipment. It carries portable smoke ejectors, a portable pump plus floodlights, a 2,500 watt power plant, two 10-ft. sections of suction hose, four 500 watt floodlights and two 500 watt beam lights. Ten compartments with removable shelves and dividers carry deodorant sprays for smoke odors, fire extinguishers, forcible entry tools, roof patching equipment, flares, guide lines, and a complete first-aid kit.

Good Stop at Farm Fire

Based on a report by Chief Howard G. Reynolds of the Eagleville Fire Department.

First responding fire companies found the Mansfield barn involved to this extent. Prompt placement and operation of hose lines saved a considerable portion of the property.

A RECENT dairy farm fire in Mansfield, Connecticut, provides some interesting lessons for fire departments that protect rural properties. This particular farm included a fine herd of 185 milking cows, a milk processing plant and a large retail milk delivery section. It is located on a dead-end road in the southeastern section of Mansfield. The fire called for the type of mutual aid response reported on page 23.

It was in the district served by the Mansfield Volunteer Fire Company whose fire station is located 3½ miles from the farm. The second due company is the Eagleville Fire Department located 4½ miles from the farm property.

The main barn at the farm was of cinder block and frame construction with the first floor walls being cinder block and the upper portion being frame. This was a 2-story structure built about 30 years ago with additions in 1951 and 1954. In addition to stalls on the ground level for 64 head of stock, it also included a modern milking parlor, a bulk milk tank of 6,000-qt. capacity, plus one smaller bulk milk tank, a grain room and a dairy processing plant. One hundred and fifty tons of baled hay was stored on the second floor of the main barn. When the fire occurred the livestock were all out in the pasture.

Over-all length of the barn was 200 feet, and it ran north and south. In addition, a new cow shed with tie-ups for 101 head of stock was being constructed on the west side of the main barn. The addition had cinder block walls and wood frame roof, was 206 feet long and ran east and west.

The family homestead, a large frame 2½-story dwelling is 100 feet east of the main barn. Also, 60 feet southeast of the main barn is a 1-story frame equipment repair shed. Other smaller frame buildings are on the northeast within 150 feet.

The first alarm of this fire was received at 2:17 a.m. at the Willimantic Central Dispatch Switchboard. Under the mutual aid standard operating procedures, this called for an automatic 3-company response, so the dispatcher immediately sounded the Mansfield fire alarm, an alarm for the Eagleville Fire Department and the house alarm at Willimantic Fire Headquarters.

This brought a 500 gpm pumper, a 1,500-gallon tank truck and an ambulance from Mansfield, a 500 gpm pumper, a 750 gpm pumper and a heavy duty rescue unit from Eagleville, and a 750 gpm pumper from Willimantic.

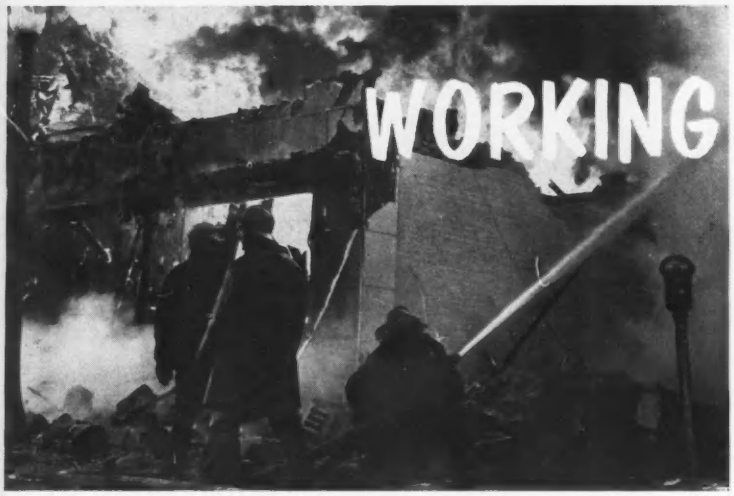
When Chief Howard G. Reynolds of Eagleville was notified by radio of the fire's location, he immediately radioed for three additional fire companies. At this point, he had not seen the fire but was familiar with the size of the barn and the exposures. The dispatcher then sounded the alarm of the South Windham, Columbia and South Coventry fire departments. South Windham responded with a 500 gpm pumper and an 800-gallon tank truck; Columbia responded with a 500 gpm pumper and South Coventry with a 750 gpm pumper, a 1,500-gallon tank truck and an ambulance. The Tolland County Control Center also sent a rescue unit and a floodlight unit. Other volunteer departments were on standby.

The Mansfield Volunteer Fire Company was under the direction of Assistant Chief Donald Clark and since the property was located in Mansfield's district, he was in over-all charge.

(Continued on page 24)

Improperly vented cement-filled steel columns burst when hit by hose streams during fire. One broke this hole in cinder block wall.

Another of the columns after it burst and sailed 100 feet. This has happened in other fires and can be a serious hazard during fire fighting operations. (See FIREMEN for October, 1951 — Ed.)



SCHEDULES OF FIRE DEPARTMENTS

by Warren Y. Kimball, Managing Editor

Part III — Conclusion

IF FIRE fighters work a 48-hour week on 2 platoons at least 9 men are needed on each platoon to provide a minimum of four men actually on duty per company. Where men work 42 hours a week, at least ten men are needed on each platoon or twenty men per company to have four actually on duty. The 42-hour week is exactly one-fourth of the calendar week so that each man is scheduled to be on duty half of the time covered by the platoon to which he is assigned, but two extra men will be needed on each platoon to cover absences.

The 48-hour work week, although fairly popular, does not fit conveniently into the 168 hours of the week as does the 56- or 42-hour week. If a two platoon system is to be retained when reducing from a 56-hour work week, it might be advisable to go to a 42-hour week. To work a 48-hour week, members are assigned to seven groups of which two groups are on duty at any one time. This means that to have four men working requires seven groups of two men plus additional relief men. In practice, 18 men properly assigned will provide four men on duty and 21 men will provide five men on duty allowing for normal absences.

The table on the opposite page shows a three-company group working a 48-hour week on day and night tours and maintaining sufficient strength to provide a minimum of four men on each company at all

(*Continued on page 22*)

Men Assigned in Three-Company Response Group

	Work Groups							
	1	2	3	4	5	6	7	Totals
Officers . . .	2	2	2	1	2	1	2	12
Operators . .	2	2	1	2	1	2	2	12
Fire fighters .	4	4	5	5	4	5	3	30
Totals . .	8	8	8	8	7	8	7	54

Note: It should be observed that a total of 12 officers and 12 operators only provides a relief man in each category for about one-half of the duty tours. It should be obvious that with this sort of schedule senior men will be acting officers from time to time and all fire fighters must be trained to operate apparatus. Some fire departments using this schedule do not have a separate classification for apparatus operators but assign fire fighters to this duty.

48-Hour Week Schedule
(Seven Groups Working Day and Night Shifts)

	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Day	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 1	2 - 3
Night . . .	5 - 6	6 - 7	7 - 1	1 - 2	2 - 3	3 - 4	4 - 5	6 - 7

Note: Beginning each work week the groups advance one tour so that days off will fall on different days of the week. The average work week consists of two 10-hour day shifts and two 14-hour night shifts. Occasionally each group works either three or five shifts a week due to the advancing cycle incorporated into the plan. Although the illustration shows the cycle starting on a Sunday the work week may be scheduled to start on some other day of the week.

24-Hr. Shift — Three Platoons — 56-Hr. Week

	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
A — Shift — Asst. Chief					×		×		×					×
Driver					×		×		×					×
Fireman					×		×		×					×
B — Shift — Captain		×		×		×					×		×	
Driver		×		×		×					×		×	
Fireman		×		×		×					×		×	
C — Shift — Captain	×		×					×		×		×		
Driver	×		×					×		×		×		
Fireman	×		×					×		×		×		

The Puyallup, Washington, Fire Department last summer changed from a two- to a three-platoon system, working a 56-hour week. Chief Paul K. Parkhurst reports that the above schedule works well. Under new law, fire fighters work a 40-hour week with time-and-a-half for overtime.

Typical Manning of Three Company Response Unit

(48-Hour Work Week, 18-Man Companies)

Assigned Groups		Groups Working													
		(1–2) Day	(5–6) Night	(2–3) Day	(6–7) Night	(3–4) Day	(7–1) Night	(4–5) Day	(1–2) Night	(5–6) Day	(2–3) Night	(6–7) Day	(3–4) Night	(7–1) Day	(4–5) Night
Engine Co. 1															
Captain	1	×					×		×					×	
Lieutenant	3			×		×					×		×		
Lieutenant	5		×					×		×					×
Lieutenant	7				×		×					×		×	
Operator	1	×					×		×					×	
Operator	2	×		×					×		×				
Operator	4					×		×					×		×
Operator	6		×		×					×		×			
Fire fighter	1	×					×		×					×	
Fire fighter	2	×		×					×		×				
Fire fighter	3			×		×					×		×		
Fire fighter	4					×		×					×		×
Fire fighter	5		×					×		×					×
Fire fighter	6		×		×					×		×			
Fire fighter	7				×		×					×		×	
Fire fighter	2	×		×					×		×				
Fire fighter	4					×		×					×		×
Fire fighter	6		×		×					×		×			
		6	5	5	5	5	5	5	6	5	5	5	5	5	5
Engine Co. 2															
Captain	2	×		×					×		×				
Lieutenant	1	×					×		×					×	
Lieutenant	4					×		×					×		×
Lieutenant	6		×		×					×		×			
Operator	1	×					×		×					×	
Operator	3			×		×					×		×		
Operator	5		×					×		×					×
Operator	7				×		×					×		×	
Fire fighter	1	×					×		×					×	
Fire fighter	2	×		×					×		×				
Fire fighter	3			×		×					×		×		
Fire fighter	4					×		×					×		×
Fire fighter	5		×					×		×					×
Fire fighter	6				×					×		×			×
Fire fighter	7				×		×					×		×	
Fire fighter	3			×		×					×		×		
Fire fighter	4					×		×					×		×
Fire fighter	6		×		×					×		×			
		5	5	5	5	6	5	5	5	5	5	5	6	5	5
Ladder Co. 1															
Captain	3			×		×					×		×		
Lieutenant	2	×		×					×		×				
Lieutenant	5		×					×		×					×
Lieutenant	7				×		×					×		×	
Operator	2	×		×					×		×				
Operator	4					×		×					×		×
Operator	6		×		×					×		×			
Operator	7				×		×					×		×	
Fire fighter	1	×					×		×					×	
Fire fighter	2	×		×					×		×				
Fire fighter	3			×		×					×		×		
Fire fighter	4					×		×					×		×
Fire fighter	5		×					×		×					×
Fire fighter	6		×		×					×		×			
Fire fighter	7				×		×					×		×	
Fire fighter	3			×		×					×		×		
Fire fighter	5		×					×		×					×
Fire fighter	1	×					×		×					×	
		5	5	6	5	5	5	5	5	5	6	5	5	5	5
Group Totals (Disregarding vacations and sick leave)															
Number working		16	15	16	15	16	15	15	16	15	16	15	16	15	15
Officers		4	3	4	3	3	4	3	4	3	4	3	3	4	3
Operators		4	3	3	4	3	4	3	4	3	3	4	3	4	3
Fire fighters		8	9	9	8	10	7	9	8	9	9	8	10	7	9

48-Hour Work Week with Three-Group System used in Some Cities

	Sun.		Mon.		Tues.		Wed.		Thurs.		Fri.		Sat.		Sun.		Mon.		Tues.		Wed.		Thurs.		Fri.		Sat.	
Hours Worked	10	14	10	14	10	14	10	14	10	14	10	14	10	14	10	14	10	14	10	14	10	14	10	14	10	14	10	14
Captain	×		×		×		(24)	×		×		×			(72)				×		×		×		(24)	×		×
Fire fighter	×		×		×		(24)	×		×		×			(72)				×		×		×		(24)	×		×
Fire fighter	×		×		×		(24)	×		×		×			(72)				×		×		×		(24)	×		×
Fire fighter	×		×		×		(24)	×		×		×			(72)				×		×		×		(24)	×		×
Fire fighter	×		×		×		(24)	×		×		×			(72)				×		×		×		(24)	×		×
Fire fighter	×		×		×		(24)	×		×		×			(72)				×		×		×		(24)	×		×
Lieutenant		×		×		×			(72)				×		×		×		(24)	×		×		×			(72)	
Fire fighter		×		×		×			(72)				×		×		×		(24)	×		×		×			(72)	
Fire fighter		×		×		×			(72)				×		×		×		(24)	×		×		×			(72)	
Fire fighter		×		×		×			(72)				×		×		×		(24)	×		×		×			(72)	
Fire fighter		×		×		×			(72)				×		×		×		(24)	×		×		×			(72)	
Fire fighter		×		×		×			(72)				×		×		×		(24)	×		×		×			(72)	
Lieutenant			(72)				×		×		×		(24)	×		×		×			(72)			×		×		
Fire fighter			(72)				×		×		×		(24)	×		×		×			(72)			×		×		
Fire fighter			(72)				×		×		×		(24)	×		×		×			(72)			×		×		
Fire fighter			(72)				×		×		×		(24)	×		×		×			(72)			×		×		
Fire fighter			(72)				×		×		×		(24)	×		×		×			(72)			×		×		
Fire fighter			(72)				×		×		×		(24)	×		×		×			(72)			×		×		
Captain		×			(72)				×		×		×		(24)	×		×		×			(72)			×		
Fire fighter		×			(72)				×		×		×		(24)	×		×		×			(72)			×		
Fire fighter		×			(72)				×		×		×		(24)	×		×		×			(72)			×		
Fire fighter		×			(72)				×		×		×		(24)	×		×		×			(72)			×		
Fire fighter		×			(72)				×		×		×		(24)	×		×		×			(72)			×		
Fire fighter		×			(72)				×		×		×		(24)	×		×		×			(72)			×		
Lieutenant			×		×		×		(24)	×		×		×			(72)				×		×		×		(24)	×
Fire fighter			×		×		×		(24)	×		×		×			(72)				×		×		×		(24)	×
Fire fighter			×		×		×		(24)	×		×		×			(72)				×		×		×		(24)	×
Fire fighter			×		×		×		(24)	×		×		×			(72)				×		×		×		(24)	×
Fire fighter			×		×		×		(24)	×		×		×			(72)				×		×		×		(24)	×
Fire fighter			×		×		×		(24)	×		×		×			(72)				×		×		×		(24)	×
Lieutenant	×		(24)	×		×		×		(72)				×	×		×		(24)	×		×		×		(72)	
Fire fighter	×		(24)	×		×		×		(72)				×	×		×		(24)	×		×		×		(72)	
Fire fighter	×		(24)	×		×		×		(72)				×	×		×		(24)	×		×		×		(72)	
Fire fighter	×		(24)	×		×		×		(72)				×	×		×		(24)	×		×		×		(72)	
Fire fighter	×		(24)	×		×		×		(72)				×	×		×		(24)	×		×		×		(72)	
Fire fighter	×		(24)	×		×		×		(72)				×	×		×		(24)	×		×		×		(72)	

(24) — 24 hours off (72) — 72 hours off × — Work shift

(*Continued from page 20*)

times. The disadvantages of the 48-hour week schedule on a day and night tour system as compared with the 42- or 56-hour week is readily apparent. With the 48-hour week, different officers and men are working together on each tour and more details are needed from company to company to keep the working force balanced. This is because 48 hours is not an even fraction of a week, nor does it divide into two, three, or four even platoons.

As shown on the bottom of page 20, the Puyallup, Washington, Fire Department now works a three-platoon system. Last summer an act was passed by the Washington State Legislature, making the 40-hour week mandatory, with time-and-a-half payment granted for all hours worked in excess of 40. Most of the fire departments in the state adopted new salary schedules, lowering the hourly rate, so that hours worked in excess of straight time would not exceed the salary budgets.

A question was raised concerning the possibility of working a 48-hour week with a three-group system. This can be done, as shown by the table on top of this page. The arrangement provides 24 hours off after a group works three day shifts, and 72 hours off after it works three night shifts. The working cycle will be completed at the end of twelve weeks.

Fire Chief John W. Parent of Agawam, Massachusetts, submitted the schedule illustrated by the table below. He reports that a number of Massachusetts fire departments have used this system satisfactorily.

The officers and men operate in seven groups, completing a cycle of shifts in seven weeks. In Agawam, this provides officers and men on every shift. The system is planned so that the last day or night any group works in a week will be the first night or day that it works in the following week.

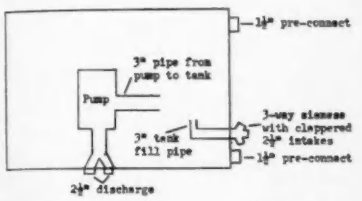
Seven-Group Assignment for 48-Hr. Work Week

	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
D	7–1	1–2	2–3	3–4	4–5	5–6	6–7
N	4–5	5–6	6–7	7–1	1–2	2–3	3–4
D	6–7	7–1	1–2	2–3	3–4	4–5	5–6
N	3–4	4–5	5–6	6–7	7–1	1–2	2–3
D	5–6	6–7	7–1	1–2	2–3	3–4	4–5
N	2–3	3–4	4–5	5–6	6–7	7–1	1–2
D	4–5	5–6	6–7	7–1	1–2	2–3	3–4
N	1–2	2–3	3–4	4–5	5–6	6–7	7–1
D	3–4	4–5	5–6	6–7	7–1	1–2	2–3
N	7–1	1–2	2–3	3–4	4–5	5–6	6–7
D	2–3	3–4	4–5	5–6	6–7	7–1	1–2
N	6–7	7–1	1–2	2–3	3–4	4–5	5–6
D	1–2	2–3	3–4	4–5	5–6	6–7	7–1
N	5–6	6–7	7–1	1–2	2–3	3–4	4–5

Tanker Operations in Connecticut

CHIEF A. Morrison Ennis of the Mortlake Volunteer Fire Department in Brooklyn, Connecticut, for a number of years has been experimenting with methods of using tank trucks for rural fires. As reported previously in FIREMEN magazine, the fire departments protecting rural areas in Connecticut have developed an effective mutual aid response in which mobile water supply plays an important part.

Chief Ennis reports that first response to all fires in the Mortlake area of Brooklyn brings three pieces of apparatus. The first piece is an 800-gallon tank truck with a 500 gpm pump. At the rear of the tank is a three-way siamese connection with 2½-in. clappered intakes. This supplies 3-in. piping so that the tank can be filled at the rate of 500 gpm. The suction line from the pump to the tank is also 3-in size.



Sketch of valve and piping arrangement in Mortlake tank trucks.

The second piece of apparatus is a 500 gpm pumper with a divided hose body. This piece can lay two parallel hose lines of 1,100 feet or a single 2,200-foot hose line. One-third of the load is 3½-in. hose.

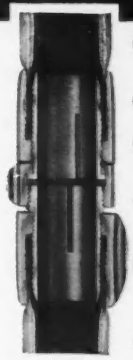
The third truck is a small service vehicle which carries all emergency equipment such as breathing apparatus, resuscitator, portable pumps, portable generator and salvage covers.

For certain areas which have limited water supply and for all alarms of structural fires, three mutual aid tankers are dispatched immediately. If first apparatus responding to the fire radios that more help is needed, three more tankers are sent. When some serious fires are reported all six tank trucks are dispatched immediately.

Usual procedure on the fire ground is for the 800-gallon tanker to take a position near the fire and put two pre-connected 1½-in. lines into operation. If the 500 gpm pumper can take position at a water source within 2,000 feet of the tank truck the crew puts one or two lines into operation which relay water to the tanker. However, if no drafting water is available or if the fire can be controlled with a maximum of 300 gpm, then the incoming tankers discharge water into the clappered siamese connection on the rear of the tank truck. A man is assigned to direct this operation so that connections can be made quickly and tank trucks will unload in proper sequence, one at a time. This permits each of the responding tank trucks to dump their water supply into the 800-gallon tanker and then move off quickly for more water.

The tank trucks are filled by a pumper at a static water supply. Three 2½-in. fill lines are provided and, if necessary, portable pumps are put into operation to provide the fastest possible filling and to prevent delay when more than one tank truck arrives.

If more water is being delivered to the fire ground than can be used by the 800-gallon tanker, a 3,000-gallon capacity portable canvas water tank is used as standby. Usually this portable tank is set up as soon as possible early in fire fighting operations.



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Good Stop at Farm Fire

(*Continued from page 19*)

Just 800 feet east of the barn is a water hole which was constructed by the owner in April 1957. This has a capacity of about 400,000 gallons.

Mansfield volunteers were the first to arrive on the scene and positioned their pumper and tank truck between the house and the burning barn, then set up a water curtain to protect the house which was already starting to blister.

Eagleville, next to arrive, laid two 2½-in. lines from the fire ground to the water hole and took draft. As other companies arrived, additional 2½-in. lines were laid so that a total of 5 lines were used. Willimantic's 750 gpm pumper supplied two lines, so did Eagleville's 750 gpm pumper, while Eagleville's 500 gpm pumper supplied one line.

South Coventry's 750 gpm pumper was set up near the barn, then was supplied by two of the 2½-in. lines. One of the other 2½-in. lines was wyed into two 1½-in. lines for interior work on the processing plant at the north end of the main barn.

The roof had already collapsed on the new addition when first companies arrived, so no lines were used on it. Efforts were concentrated on saving the section of the barn housing the bulk milk tank and the processing plant. Also, a line was directed through the windows of the milking parlor. The owner requested that an effort be made to protect these three areas in order that he might be able to resume operations as quickly as possible. The second floor of the processing plant, used for storage of bottle caps, bottles, etc., was fully involved by the time first hose streams were brought into action. However, the fire was controlled there and the first floor suffered little damage.

Two 2½-in. lines stopped the fire from spreading into the addition containing the bulk milk tank, even though this addition was joined onto the main barn with a large vertical opening between buildings.

The fire was declared under control at 5:30 a.m. However, some companies remained on the scene until 7:30 p.m. At that time, all equipment was released with the exception of Mansfield's tanker which remained for another two days with a 1½-in. wet down line for hay and debris.

The heavy duty rescue unit was used to remove the debris from the milking parlor. This unit is equipped with a boom and a winch.

Considerable care was taken not to damage the cinder block exterior walls as they appeared to be in good shape. All debris had to be removed over the top of the walls. It was then loaded onto trucks and carted away. The milking parlor was then washed down with hose lines and after a few minor repairs had been made to the stainless steel pipes running to the bulk tanks and temporary electric service had been provided, the cows were milked in the parlor at 3:00 p.m. that day.

All of the cinder block exterior walls were found to be sound with the exception of a small section that collapsed when the hay dropped down. The two silos adjacent to the barn were of tile construction and withstood the fire very well. The only damage was caused when they were hit accidentally with a hose stream.

It might be well to caution rural fire departments that hose streams *should not* be used on tile silos. The water will crack the hot tile.

The wind was from the east at only about 5 mph which was of considerable help in control operations. Also a heavy fog covered the area at the time.

An interesting sidelight was the explosion of supporting steel columns in the new section. These were tightly capped top and bottom and the excessive pressure caused by the heat resulted in several of them exploding. One went completely through the 12-in. block wall and others went into the air for more than 100 feet from their original position. Fortunately, this did not result in any injuries to personnel.

Accident Prevention Manual

A NEW fourth edition of the *Accident Prevention Manual for Industrial Operations* has been announced by the National Safety Council. The 1,542-page reference volume has 204 more pages than the previous edition and includes 500 illustrations and data on many aspects of industrial safety.

New chapters cover the hazards of handling radioactive materials, nondestructive means of testing materials and products through radiography, and kinds of radiation and safe limits of exposure. Other subjects covered include accident investigation; analysis and costs; plant construction and maintenance; handling and storage of materials; power trucks and tractors; ropes, chains and slings; hand and portable power tools; flammable liquids; personal protective equipment; medical, nursing and first-aid services in industry; and a table of chemical hazards.

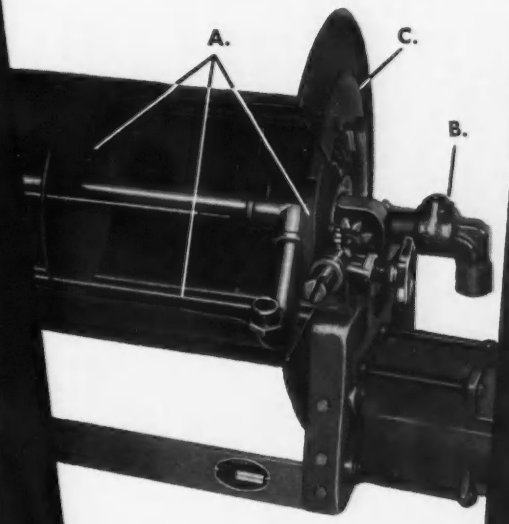
The new fourth edition of the manual is priced at $15.50 for single copies, $14.75 for two to nine copies, $14 in quantities of 10 to 99, and $13.20 when 100 or more are ordered. Detailed information can be obtained from the National Safety Council, 425 North Michigan Avenue, Chicago 11, Illinois.

New Pumper for Union City

THE Union City, Pennsylvania, volunteer fire department recently bought this new 750 gpm pumper. It has a 500-gallon booster tank, two booster hose reels, and carries 500 feet of one-inch hose, a 35-ft. three-section ladder, a 14-ft. roof ladder, a 10-ft. aluminum folding ladder, and other basic fire fighting accessories.

The pumper was manufactured by the fire apparatus division of FWD Corporation, Clintonville, Wisconsin.

What's Inside Counts Most



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Design and construction features make the big difference in hose reels, and these features make Hannay reels first choice among firemen everywhere: Tie-rod *plus* disc reinforcing provide maximum strength for maximum shock pressures. Weight of reel and hose carried on the frame, *not on the swing joint*, to insure leak-proof operation. Chain and sprocket maintain perfect alignment for flexible, positive drive.

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Hose Reels by HANNAY

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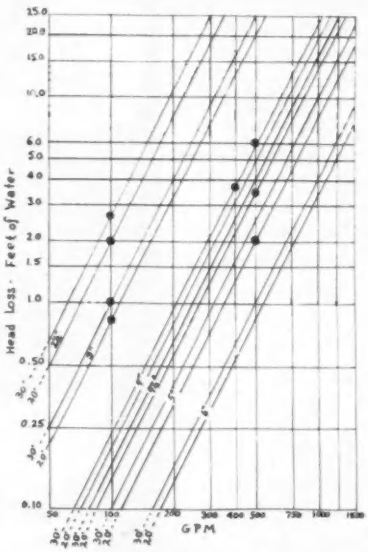
Pressure Head Losses in Suction Hose

LOSSES in typical suction hose with strainer attached are shown on this chart based upon data furnished by the Hale Fire Pump Company of Conshohocken, Pennsylvania. For example, a flow of 100 gpm through 30 feet of 2½-in. suction hose causes a pressure loss equivalent to 2.7 feet of lift. If only 20 feet of 2½-in. suction hose is used the loss would be cut to the equivalent of 2.0 feet of lift at this flow. At the same flow the use of 3-in. suction hose would cut the loss to one foot of lift with 30 feet of hose and to 0.8 foot of lift with 20 feet of suction hose.

In the case of a 500 gpm flow with 30 feet of 4-in. suction hose the pressure loss is equivalent to 6 feet of lift. With 20 feet of 4½-in. suction hose the loss is equal to 3.5 feet of lift; with 20 feet of 5-in. hose the loss equals 2 feet of lift.

A fire engine in good condition which is able to maintain a vacuum gage reading of 22 inches of mercury is capable of a suction head of approximately 25 feet (22 x 1.133= 24.926 feet). However, all of this suction capability cannot be used for losses in the suction hose and strainers. Standard No. 19 requires pumpers to deliver rated capacity at a 10-ft. lift. This means that the pump may overcome only 15 more feet of head, since it also has to overcome losses in the suction hose and velocity losses in the suction side of the pump. When a 500 gpm pump is drafting through 20 feet of 4-in. suction hose at a 10-ft. lift, there is a 5-ft. head loss (see chart), or a total of 15 feet of pressure head lost in lifting the required flow to the pump. Thus, the pump has a remaining capability of overcoming only 10 feet of pressure head for other losses. If, on the other hand, a 5-in. suction hose is used the water would be lifted a height of 10 feet through 20 feet of suction hose using only 12 feet of pressure head leaving 13 feet of pressure head for other losses. At high elevations above sea level the atmospheric pressure is much lower and the use of large diameter suction hose becomes even



Total head losses for fire pump suction hose in feet of water including entrance and suction hose strainer losses and suction hose friction losses. Suction hose diameters indicated between lines marked as 30-ft. and 20-ft. lengths.

Better Hose Care-with CIRCUL-AIR
HOSE CONDITIONING EQUIPMENT
WASHERS • DRYERS • TURN-TABLES • STORAGE RACKS

ROTO-JET HOSE WASHER AUTOMATICALLY WASHES—RINSES—DRAINS HOSE

ROTO-JET Washes, Rinses, Drains hose thoroughly and quickly. Hose is self-propelled. Simple one-man operation. With or without detergents, ashes, glass and sludge are automatically scrubbed out and flushed away. Lengthens hose life. Foot-Pedal Operation.

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The patented, electrically operated Circul-Air hose dryer circulates pre-warmed fresh air through loosely coiled hose at the rate of 5 to 6 air changes per minute. No other drying method is so fast — so economical — so easy to use. The preferred dryer in over 5,000 leading Fire Departments.

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The fast, modern way to handle, store and load hose.

PORTO-RAK MOBILE HOSE STORAGE AND LOADING UNIT

Saves valuable space. Holds 1,800 ft. of 2½" hose — proportionately more of 1½" — in an 8 ft. space (when loading table is detached). Roll it right up to the truck for reloading — out of the way when not in use. Equipped with locking fiber-wheeled casters.

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more important to conserve the potential lift.

Larger diameter suction hose is also very important at high lifts. Suppose a 750 gpm pump is drafting at a 17-ft. lift using 20 feet of 4½-in. suction hose. From the chart we learn that this flow will result in a pressure head loss of 8 feet, so that without any allowance for velocity losses in the pump there is a total loss of 25 feet of lift. By using a 5-in. suction hose the head loss is cut from 8 feet to 4.5 feet with 750 gpm flowing. This is the same loss that occurs in a 4½-in. suction hose with flow cut to 600 gpm.

One other interesting fact which may be observed from the chart is that with a given size of suction hose, water may be drafted to a greater height by reducing the flow. For example, a 1,000 gpm pumper using 20 feet of 5-in. suction hose and lifting water 10 feet has a loss equivalent to 18 feet of lift. If the flow is reduced to 700 gpm (70 per cent of rated capacity) the pressure head loss is reduced to 14 feet indicating that the reduced flow could have been lifted an additional four feet at the same expenditure of energy. In general, high lifts are very critical. The volume a pump can lift with a given expenditure of energy measured in feet of pressure head through a given size suction hose will be reduced as much as 50 per cent by a 4- or 5-ft. increase in lift above the standard 10-ft. test lift. Also, the addition of an extra length of suction hose adds up to two feet of pressure head loss when pumps are operating near rated capacity. Therefore, the addition of more suction hose may not greatly increase the total possible lift because it adds to the pressure loss, unless the flow is reduced sufficiently to compensate for the additional line losses.

One of the best things any fire department can do for frequent drafting at high lifts and elevations is to standardize on a large diameter of suction hose. This is the best assurance of getting maximum possible capacity. For example, some departments use a 5-in. suction hose for all pumpers below 1,000 gpm capacity and 6-in. suction for the larger pumpers. On the 500 gpm pumper, the 5-in. suction hose will provide rated capacity at a lift 3 feet higher than does the 4-in. suction hose.

NFPA ANNUAL MEETING
MAY 16–20
Queen Elizabeth Hotel — Montreal, Quebec

Remember that when you are reading the suction side of a pumper's compound gage you are reading inches of mercury and that a reading of 22 is equivalent to a 25-ft. head. When drafting to a height of 10 feet you start with a reading of about 9 when the pump is primed before there is any appreciable volume of water moving. When drafting 15 feet the gage reading is 13 inches before any water is discharged through hose streams. As the flow is increased the suction gage reading increases due to added friction loss until the suction capability of the pump is reached. The larger the diameter of the suction hose the more water will be lifted at a given vacuum or suction gage reading.

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- Heavy Duty Construction
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winter's not half over—

If you've survived the holiday rush of fire alarms, you still face bad weather and short days with related conditions. These contribute to greater fire hazard and more alarms.

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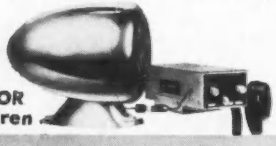
Their powerful blasts and attention-getting revolving light rays strike warnings to eye and ear alike; be sure both signals are specified on your new equipment.

Beacon Ray light



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For Complete Accuracy And Safety With Speed, Cut Your Hose The New Modern Machine Way.

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Now Hose Can Be Cut Straight — With No Ragged Or Raveled Edges — Assures Perfect Alignment With Seat Of Coupling For A Leak-Proof Connection Every Time.

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Respiratory Protective Devices

FOR many years, the NFPA Committee on Fire Department Equipment has recommended that fire departments use only the type of respiratory equipment that passes the tests of the U. S. Bureau of Mines. A description of those tests was included in the August, 1959 issue of FIREMEN magazine.

The Bureau of Mines has just published "Information Circular 7885" which lists the names and manufacturers of respiratory protective devices which have been approved by the Bureau of Mines as of October 16, 1958. The Bureau has established schedules of minimum performance requirements for the approval of self-contained breathing apparatus, gas masks, supplied air respirators, dispersoid respirators, and non-emergency gas respirators. Approval tests of self-contained breathing apparatus are conducted by the Health and Safety District B; approval tests of other types of respiratory devices are conducted by the branch of health research.

This new bulletin, accordingly, lists the self-contained breathing apparatus approved under schedules 13, 13A, 13B, 13C and 13D which are applicable to fire department use. It also includes a listing of Type N universal gas masks which are defined as "universal gas masks with filters that afford respiratory protection against smoke from ordinary fires and limited respiratory protection against dusts, fumes, mists and fogs."

This is a very useful bulletin for fire department reference. Priced at 15 cents per copy, the 24-page,

STUDYING for PROMOTION?

Home study correspondence courses from National Preparatory Institute have assisted fire fighters of all ranks in their promotional studies for 39 years. Courses cover engine and ladder company procedures, salvage, overhauling, inspections, fire problems, hydraulics and other subjects with sketches and illustrations of fire problems, tools and equipment.

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8½- by 11-in. paper-bound bulletin can be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Ask for Bureau of Mines Information Circular 7885 — "Respiratory Protective Devices Approved by the Bureau of Mines as of October 16, 1958."

32nd Annual FDIC

THE 32nd Annual Fire Department Instructors' Conference will be held in Memphis, Tennessee, March 1–4. Sponsored by the Western Actuarial Bureau of Chicago, Illinois, and the Memphis, Tennessee, Fire Department, the conference is one of the most important fire service meetings held each year. It brings together more than 1,500 fire department chief officers and instructors from almost all of the United States and the Provinces of Canada.

Prominent speakers scheduled for this year's program are Charles S. Morgan, NFPA Assistant General Manager; John J. Ahern, security director for General Motors, Detroit, Michigan; Raul Gandara, fire service chief of Puerto Rico; and Miss Fannie Hardy, Little Rock, Arkansas, first vice president, Business and Professional Women's Clubs of America and executive assistant, Insurance Commissioner of Arkansas.

Also scheduled for the four-day meeting are demonstrations of new equipment and techniques for fire control, training films, and discussion of fire prevention and inspection methods.

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Convert your spare time into steady income selling most popular line of Belts and Buckles with Fireman's personal initials, first name or nickname with miniature replicas of actual fire equipment beautifully enameled, also lapels, tie clasps, key chains, money clips, and cuff links. Excellent repeat business. We furnish you with FREE complete sales kit. Really nice part-time money producing items.

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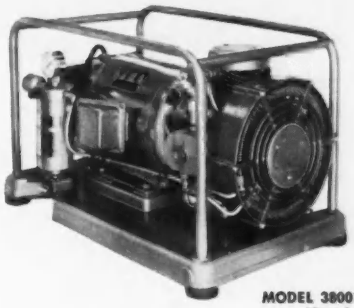

new!

Cornelius Air Compressor for Fire Departments!

MODEL 3800105 — 3 H.P., 220 volt, single phase, 60 cycle electric motor. Adjustable pressure switch. Motor starter. Capacity 4 CFM with pressures up to 3000 PSI. Weight approximately 120 lbs.

features single phase motor for simplified installation

Winning highest praises from fire chiefs everywhere is the new line of Cornelius 380 Series air compressors. Now, an electric model with an extremely dependable SINGLE PHASE motor has been added to the series. Here is a *large capacity* compressor that can be used with commonly available electrical current. The single phase model will fill a 38 cu. ft. air tank with pure, breathing quality air in less than 10 minutes and will fill a 70 cu. ft. tank in less than 18 minutes. Be sure the men in your department have the protection and confidence inspired by an abundance of pure, fresh compressed air. Write today for complete information about Model 3800105 and other 380 Series compressors.

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LEATHER, ALUMINUM AND PLASTIC

REGULATION AND DROP BRIM MODELS

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(Leather)

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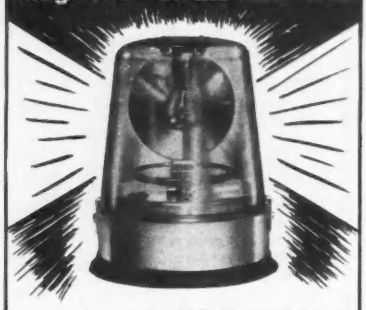

New **360° Revolving WARNING LIGHT**

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No one can believe the price!

What a light! Plugs into cigarette lighter. Holds like grim death. Six magnets. Silent motor. Revolving reflector. 60 powerful flashes a minute. Red, blue, or amber dome. Ideal for wreckers, service cars, ambulances, volunteer fire and police at a price they can afford. 7" tall, 5" dia.

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Who Reads FIREMEN?

A RECENT study of the circulation of FIREMEN magazine, covering a six-month period, shows some interesting readership data. Each month 30,192 copies of the magazine went to readers who subscribed through individual or fire department membership in NFPA. Here, for example, is a breakdown of these subscribers:

Municipal fire departments, chiefs, ass't. chiefs, commissioners	9,332
All other fire officials	1,746
Individual firemen	14,638
Industrial plant fire brigades, officials and plant fire protection engineers	2,305
City and state fire marshals, CD officials and fire insurance engineers	847
Fire equipment distributors and manufacturers	379
Municipal airports, Air Force bases, Naval air stations and shipyards	170
Libraries, schools, hospitals and public utilities	159
Miscellaneous	616

Also shown on this page are the names of new NFPA fire department members who have recently joined the Association.

Alaska: Haines Volunteer Fire Department, Haines.

Arizona: Wickenburg Volunteer Fire Department, Wickenburg.

British Columbia: Chemainus Volunteer Fire Department, Chemainus.

California: Half Moon Bay Fire Protection District, Half Moon Bay.

Connecticut: Scotland Volunteer Fire Department, Scotland; Windsor Volunteer Fire Department, Windsor.

Georgia: South Cobb Fire Department, Mableton.

Illinois: Duquoin Fire Department, Duquoin; Northfield Fire Department, Northfield; St. Jacob Township Fire Department, St. Jacob.

Indiana: Crown Point Volunteer Fire Department, Crown Point.

Iowa: Indianola Volunteer Fire Department, Indianola.

Louisiana: Bradley Fire Department, Bradley; Lafayette Parish Fire Protection District No. 1, Lafayette.

Maine: Cape Elizabeth Fire Department, Cape Elizabeth.

Massachusetts: Waltham Fire Department, Waltham; Williamsburg Fire Department, Williamsburg.

Michigan: Dearborn Township Fire Department, Dearborn; Georgetown Township Fire Department, Jenison.

Mississippi: Louisville Fire Department, Louisville.

Missouri: Berkeley Fire Department, Berkeley.

Montana: Helena Fire Department, Helena.

New York: Bay Shore Fire Department, Bay Shore, L. I.; Otego Volunteer Fire Department, Otego; Patchogue Fire Department, Patchogue.

Ohio: Van Wert Fire Department, Van Wert.

Rhode Island: Tiogue Fire Department, Coventry.

South Carolina: Prosperity Volunteer Fire Department, Prosperity.

Texas: San Angelo Fire Department, San Angelo.

Virginia: Kilmarnock Volunteer Fire Department, Inc., Kilmarnock; Spotsylvania Volunteer Fire Department, Inc., Spotsylvania.

Wisconsin: Embarrass Volunteer Fire Department, Embarrass; City of Franklin Fire Department, Hales Corner; Kansasville Volunteer Fire Department, Kansasville.

THEN and NOW

PREVIOUS TESTS 1902
At the Convention of the International Association of Fire Engineers, held in New York in September, 1902, the GLOBE Turn-Out Suit was tested by a solid 1½-inch stream forced at 180 pounds pressure.

Under any conditions the Suit DID NOT WET THROUGH!

1903
The GLOBE Turn-Out Suit was tested at the Convention of the International Association of Fire Engineers, held in Atlantic City in September, 1903. A solid 2-inch stream from an Eastman 4-way deluge set was played on a fireman wearing the GLOBE. Again the Suit DID NOT WET THROUGH!

The GLOBE Suit was considered the best then — it's twice as good today! Specifically, over 60 years of constant improvement have made it warmer, lighter in weight, tops in comfort, with highest quality hardware and several models available for every possible use under all conditions. Heat it — freeze it — soak it — you can't hurt it. It's still the standard of excellence today throughout the world!

STANDARD SINCE 1901

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FREE Fully illustrated, 9-page catalog on the complete GLOBE fireman's suit and accessories line. Aluminized suits also available.

WATEROUS MEANS UNCOMPROMISING QUALITY

Dependability is the result of sound design, experienced workmanship, and many rigid manufacturing controls.

A rich background of experience stands behind every WATEROUS fire pump—built by workmen who have a deep sense of pride in the precision construction of every pump.

The final test, illustrated here, is a check on the many inspections that have gone before. Here, the pump is being run according to full contract requirements. A record is kept of the performance of every fire pump that leaves the WATEROUS factory.

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For more complete information about ELECTRO-MATIC fire pumps write:

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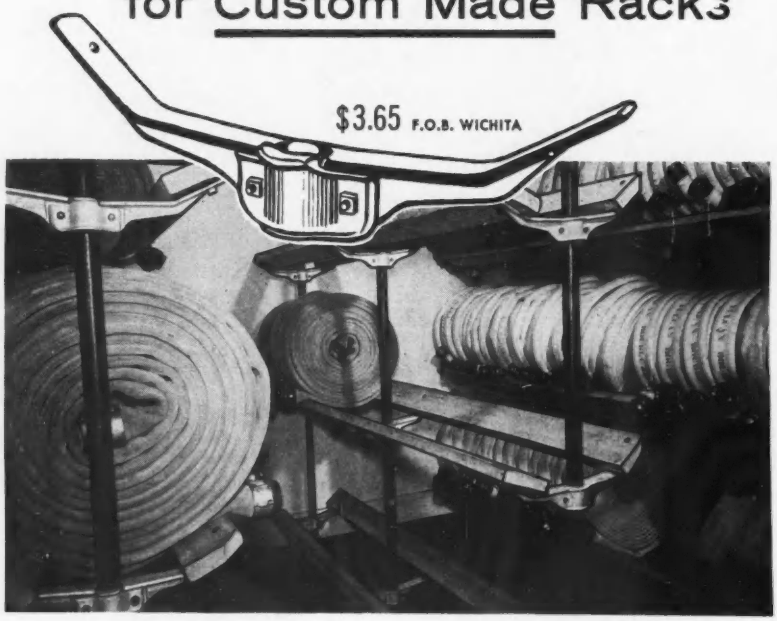
for Custom Made Racks



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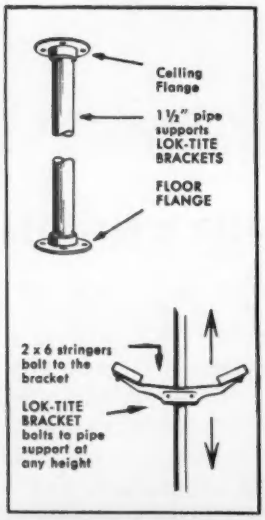
Lok-Tite fire hose brackets provide storage racks in odd dimension areas where ready-made storage will not fit. Encourage good housekeeping practices . . . assure easy hose inspection and correct ventilation by building sturdy storage with Lok-Tite brackets approved by hose manufacturers and fire departments everywhere.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2 x 6 stringers bolt to the bracket
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Please send me ____ brackets @ $3.65.
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- Simple to install
- Easy to adjust
- Big load support

What "Operation School Burning" Did NOT Say

SINCE the publication of the NFPA book, *Operation School Burning*, reporting tests by the Los Angeles Fire Department, there has been a great deal of misunderstanding or misquotation of what this report did and did not say. Just to clear the record, we would like to say that this report:

1. Did not say that automatic sprinklers alone were a complete answer to the school fire problem.
2. Did not say that automatic sprinklers were ineffective.
3. Did not say that automatic fire detection was no good.
4. Did not say that automatic fire or smoke detection was the sole answer to the school fire problem.
5. Did not say that stairway enclosures were undesirable.
6. Did not include any final recommendations on anything. In other words, please read the report.

Any Old Lanterns?

LIEUTENANT Lawrence N. Clark, of the Newton, Massachusetts, Fire Department, operates the National Fire Museum in South Carver, Massachusetts. The museum is dedicated to the preservation and restoration of old fire apparatus and equipment. Recently he sent a note to FIREMEN magazine stating that he needed several of the "old type Dietz oil lanterns" for some of the apparatus on display at the museum.

Readers who know where such lanterns may be obtained can drop a note to Lt. Clark at 29 Richardson Street, Newton 58, Massachusetts.

Announcing

FIREMANSHIP I

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TECCO LABORATORIES

A new basic manual of fire-fighting methods. An excellent guide for Fire Company Training Programs. Gives background for actions and decisions. Covers hose laying and apparatus positioning techniques.

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TECCO LABORATORIES
P. O. BOX 541-A BRANFORD, CONN.

Miss Joan West, secretary to the editor of *Fire Protection Review*, helped Sparky to identify the insignia of the British fire service.

A member of the Lowestoft unit of the Suffolk and Ipswich Fire Brigade shakes hands with Sparky when he stopped for an inspection.

Finally arriving at Redhill, Sparky joined the Frazer children (left to right) Simon, nine; Jeanne, six; Joy, one; and Jonathan, ten.

Sparky in England

LAST December the staff of the journal, *Fire Protection Review*, published in Fleet Street, London, was introduced to Sparky, the fire dog. A doll, sent by NFPA to the Frazer family at "Claire" Brambletye Park Road, Redhill, Surrey, was brought to the office of the *Review* for introduction to the staff.

According to the editors, Sparky received the special hospitality given to all fire service members who visit London. He was taken through the city to see the scars left by the incendiary bomb raids of 1940 and 1941. He stopped by St. Paul's Cathedral, spent a weekend in Suffolk County, visited the Lowestoft unit of the Suffolk and Ipswich Fire Brigade, met Divisional Officer R. Bishop and finally found his way to the children of the Frazer family in Redhill.

The editors of the *Review* followed his trip and sent pictures to the NFPA Public Relations Department. A few of these are shown on this page.

GERSTENSLAGER EMERGENCY RESCUE VEHICLES

No standard rescue unit is just right for every local situation. Each department must analyze its own requirements before planning a rescue squad operation. Gerstenslager sales-engineers have helped hundreds of communities develop the most efficient unit for the needs at hand... and for less money. This service puts you under no obligation whatsoever. Can we help you?

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New brochure and check list helps you determine the best type of truck body and the rescue equipment required. Write for your copy now.

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Important Fire Service Dates

Illinois:

MARCH 5–6: Illinois Association of Fire Protection Districts, 17th annual meeting, Hotel Pere Marquette, Peoria. Contact Frank E. Poor, secretary, P. O. Box 500, Prospect Heights.

New Jersey:

FEBRUARY 18: Gloucester County Firemen's Association, regular meeting, Janvier. Contact Walter H. Mattson, secretary, 29 Home Avenue, Gibbstown.

MARCH 17: Gloucester County Firemen's Association, regular meeting (Old Timers' Night), Harmony, Mullica Hill. Contact Walter H. Mattson, secretary, at above address.

New York:

FEBRUARY 16: Ulster County Volunteer Firemen's Association, monthly meeting, Kingston. Contact Fred C. Harder, secretary, 34 Jarrold Street, Kingston.

FEBRUARY 18: Hudson-Mohawk Volunteer Firemen's Association, monthly meeting. Contact W. J. Hopmeier, secretary, RD 5, Box 267, Schenectady.

FEBRUARY 29: Putnam County Volunteer Firemen's Association, quarterly meeting, Garrison Fire House, Garrison. Contact Morris DeWitt, secretary, P. O. Box 602, Mahopac.

MARCH 11: Rockland County Volunteer Firemen's Association, monthly meeting, Pearl River. Contact Merle R. Blauvelt, secretary, 142 Depew Avenue, Nyack.

MARCH 13: Central Adirondack Firemen's Association, March meeting, Old Forge. Contact Floyd Simons, secretary, Wells.

MARCH 15: Ulster County Volunteer Firemen's Association, monthly meeting, Marlboro. Contact Fred C. Harder, secretary, at above address.

MARCH 17: Hudson-Mohawk Volunteer Firemen's Association, monthly meeting. Contact W. J. Hopmeier, secretary, at above address.

MARCH 29: Orange County Volunteer Firemen's Association, regular meeting, Fort Montgomery. Contact Kenneth Fowler, secretary, Harriman.

Ohio:

FEBRUARY 24: Central Western Firemen's Association, bi-monthly meeting, Fairborn Fire Department, Fairborn.

LITTLE WATER GOES A LONG WAY IN EXTINGUISHING FIRES
WHEN
STEVENS' PENETRO-WET & FIRE QUENCHER
IS ADDED
Rust Preventative, Economical, Non-toxic, It Foams
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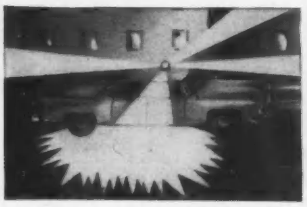
NEW CONCEPT IN WARNING LIGHTS
Combines the features of the Red Revolving Ray with WHITE LIGHT in one compact unit.



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THE ALL NEW
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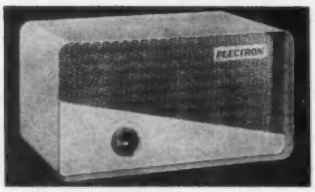

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Place a tone activated PLECTRON F.M. Radio Receiver in each fireman's home and send emergency voice messages direct from your present 2-way base transmitter into every fireman's home.

Benefit from selective calling, silent alarms, and fast, efficient alerting.

Receivers available for any radio frequency in the 25-54 and 152-174 megacycle bands, and for activation from any tone frequency between 500 and 3000 cps.

CHECK THESE FEATURES:
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- Crystal frequency control.
- Tone activated.
- Automatic reset to "silent standby."
- Super-heterodyne receiver circuit.
- Low power consumption — 28 W.
- Designed for "Narrow-Band" reception.
- 1 MV Sensitivity (10 miles without outdoor antenna).
- Compactly built in ONE case, easily portable — 10" x 5" x 6" deep.
- Attractive metal case, choice of colors.
- Low cost — $89.50 each.
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Contact Chief M. L. Warner, secretary, Central Fire Station, Fairborn.

MARCH 2: Greene County Firefighters' Association, monthly meeting, Bellbrook. Contact W. H. Shoemaker, secretary, 523 Glover Drive, Xenia.

Pennsylvania:

FEBRUARY 20: Western Pennsylvania Firemen's Association, monthly meeting, Westinghouse, East Pittsburgh. Contact Edward Clawson, secretary, 785 Fourth Avenue, New Kensington.

MARCH 19: Western Pennsylvania Firemen's Association, monthly meeting, South Butler Township, Butler. Contact Edward Clawson, secretary, at above address.

Rhode Island:

FEBRUARY 24: Pawtuxet Valley Firemen's League, monthly meeting, Harris Fire Company. Contact Everett F. Fiske, secretary, 34 Pleasant Street, West Warwick.

MARCH 30: Pawtuxet Valley Firemen's League, regular meeting, Volunteer Fire Company, Hill Farm Road. Contact Everett F. Fiske, secretary, at above address.

South Carolina:

MARCH 7: Fire service training classes, Union, through March 11. Contact H. B. Wells, instructor, Fire Fighter Training, 1539 Harrington Street, Newberry.

"Fire protection costs money, but the lack of fire protection costs both money and lives. Which can we afford?"— Chief Henry G. Thomas, president, NFPA.

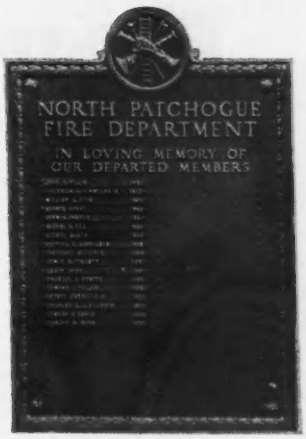
State Fire Instructors' Association

A MEETING of the State Fire Instructors' Association will be held Wednesday evening, March 2 in connection with the Fire Department Instructors' Conference in Memphis, Tennessee. Information on the time and meeting room can be obtained from the FDIC registration desk at Memphis. The Association consists of fire service instructors who take an active part in state-wide firemen's training programs.

You, You and You!

NEWS ITEM — The fire department in Rheinfeld, Germany, is having trouble recruiting volunteers. However, whenever there is a fire, dozens of citizens come out to watch, according to the newspaper *Der Stern*, as reported by NANA.

The mayor has therefore ordered police to make a list of all male spectators at each fire. Each man whose name appears three times on the lists will be automatically drafted as a volunteer fireman. (*This is volunteering? — Ed.*)



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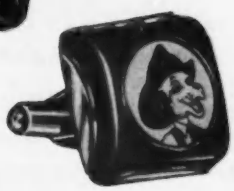

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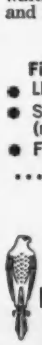

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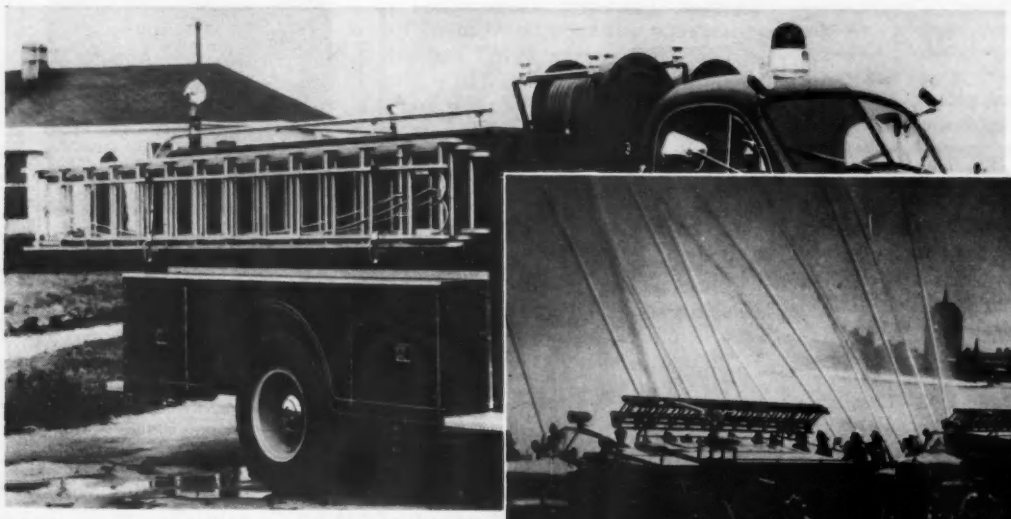
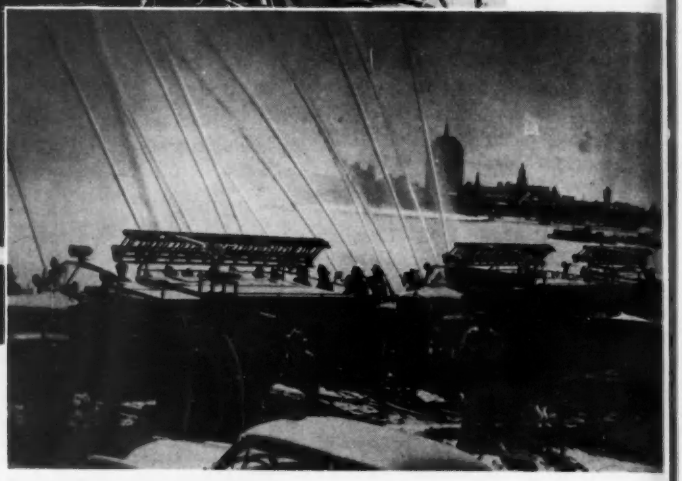
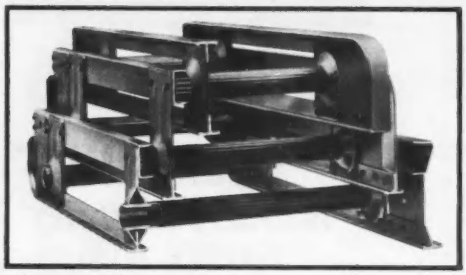
These versatile Pumpers are equipped with lightweight Alco-Lite Ground Ladders



The Pumpers shown are products of Mack Trucks, Inc., Sidney, Ohio





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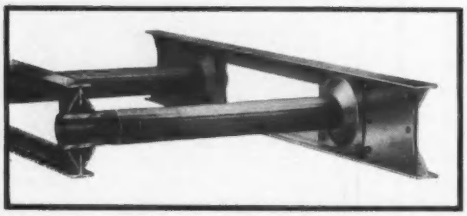
Ladder sections extend — lock and unlock simultaneously. Spring loaded locks operate automatically. Channel slides the entire length of the ladder keep sections from becoming disengaged.



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Exclusive expansion bushing, rung to rail construction prevents rungs from twisting, turning, or breaking off.

They're lighter, easier to handle

The Alco-Lite Aluminum Ladders on the Mack Pumpers above feature open side rail, T-Channel design. All excess, weight adding bulk is eliminated. Only exclusive, Alco-Lite double gusset plate, expansion bushing construction makes this trim, modern design possible. These ladders more than meet any accepted tests for strength and safety.

Maintenance is almost negligible with Alco-Lite Aluminum Ladders. They are not affected by water, moisture, fumes or gases. They will not warp, rot, splinter, or burn.

Because they are lightweight and trim, Alco-Lite Aluminum Ladders are easier to handle and easier to lift. They save precious minutes and require less physical effort when used at fires.

When you want easy to handle, safe, and almost maintenance free fire ladders, specify Alco-Lite Aluminum Ladders.

Aluminum Ladder Company ALCO-LITE

WORTHINGTON PENNSYLVANIA

Pool Alarm

IN MASSILLON, Ohio, each public school has its own master alarm box and at least one auxiliary box inside. A new alarm installation, reported by Chief Donald E. Simon of the Division of Fire, is a direct emergency line between the new high school swimming pool and the central fire station two blocks away. The purpose of this is to give the fire department notification of any emergency at the pool which would require resuscitation or other first aid. The Gamewell box alarm at the pool is separate from the existing fire alarm system in the high school. Alarms from any other school boxes would bring the normal assignment; while an alarm on the swimming pool box would bring the department's disaster unit and crew.

Wood Shingles — 1959

THE October, 1959 issue of the NFPA *Quarterly* featured an analysis of the conflagration hazard of wood-shingled roofs. Written by Rexford Wilson, Engineer, Fire Record Department, the article reports the prevalence of wood shingle roof construction in California and Texas and reports and analyzes the fire experience with this type of roof construction.

Featuring full color illustrations, the article has now been reprinted in a 16-page pamphlet. It is available at 50 cents per copy with the following discounts granted for quantity purchase: 1 to 24 copies, no discount; 25 to 499, 25 per cent; 500 to 2,499, 33⅓ per cent; 2,500 to 4,999, 50 per cent.

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Modern Fire Fighting means fire attack. It calls for a fast entrance to fight fires at their source. The Scott Air-Pak can be donned in seconds to get men in fast—with complete breathing safety, to reduce fire losses and increase efficiency of rescue work. Model illustrated provides a minimum of 30 minutes of protection at extreme exertion.

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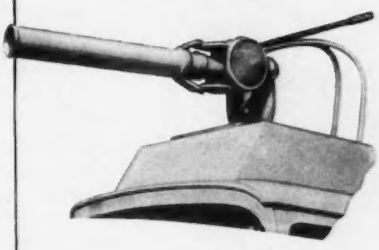
For over half a century in municipalities throughout the country, Rockwood's highly advanced fire-fighting aids have been proving their ability to save lives and property. Make sure your own department has these most dependable tools to work with . . . Mail the coupon for details on the complete Rockwood line.

Foam Eductor. Introduces FOAM liquid into hose line for use with Rockwood FFF nozzles.

Direct Manual Control Turret. Provides "out-in-the-open" control from cab roof.



Remote Manual Control Turret. Easily handled from driver's seat for fast action.

SG-60 Nozzle With FFF Extension. Discharges straight water stream or WaterFOG, solid FOAM stream or FogFOAM.

Rockwood Double Strength FOAM Liquid. Mixing 3 parts with 97 parts water forms a blanket with proved ability to extinguish spill fires in flammable liquids with maximum speed and safety.

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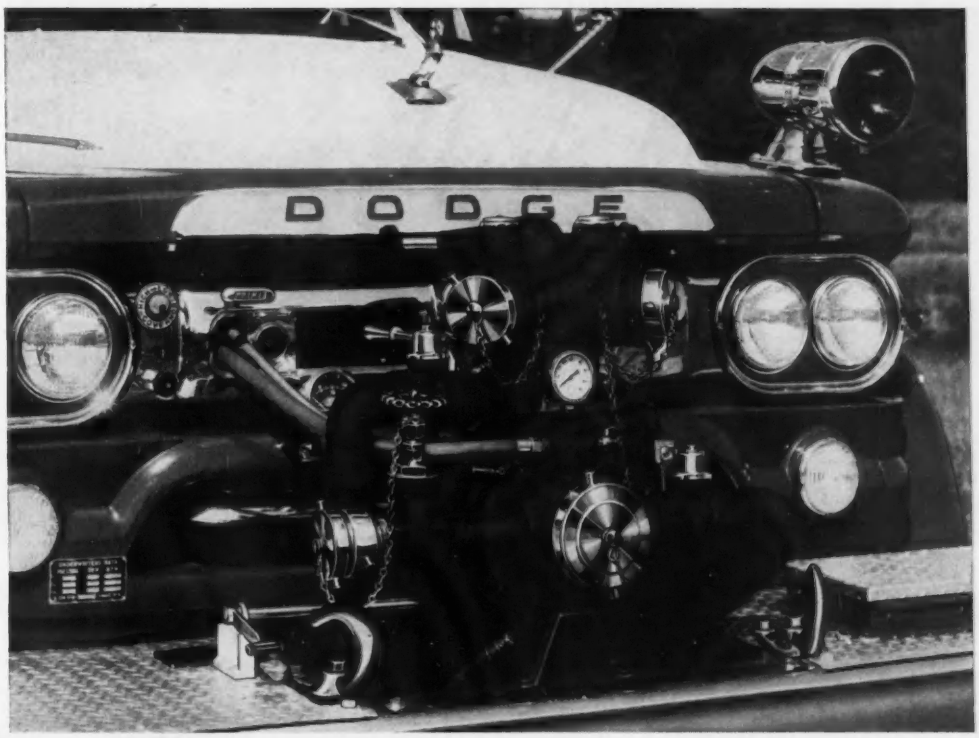

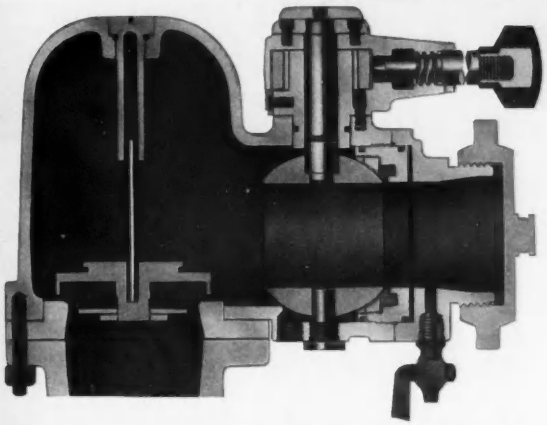

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BALL-TYPE LOCKING VALVES

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Barton-American ball-type locking valves move into position for any capacity or volume you need — lock in that position with a quarter turn of the handle.

The UA-50 gives you all the advantages of front mounted location: You can fight fires *on the move* with two or more hose lines. With drive wheels on solid ground you can "nose" down to pond or stream to draft water inaccessible to midship pumpers. Front pumps weigh less, use no body space . . . you can carry more water and equipment.

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You get these advantages in the UA-50 Ball-type Locking Valve:

1. **Smooth-as-silk operation.**
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3. **Locks positively in any position.**
4. **A quarter-turn of the handle locks it.**
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7. **Modern, smooth appearance.**

You also get UA Pump features such as: *Exclusive,* positive interlocking pump clutch that can't slip at a fire; both volume and high pressure to 400 pounds for effective fog streams; fast, reliable, engine vacuum primer; effective, frost-proof construction; plus many other UA advantages.

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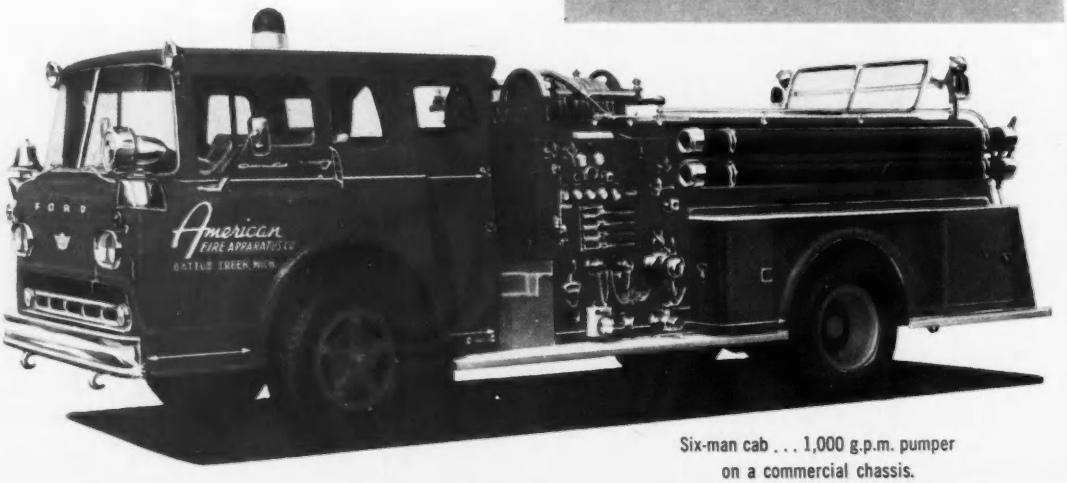

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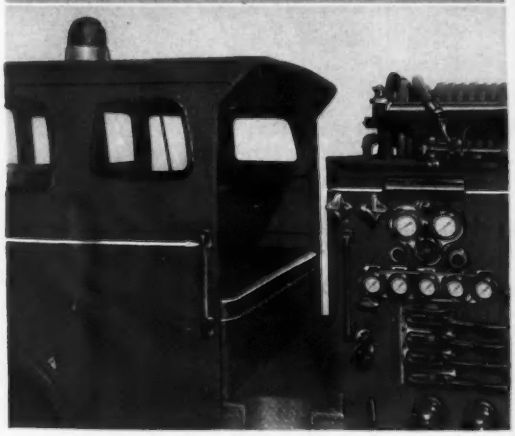

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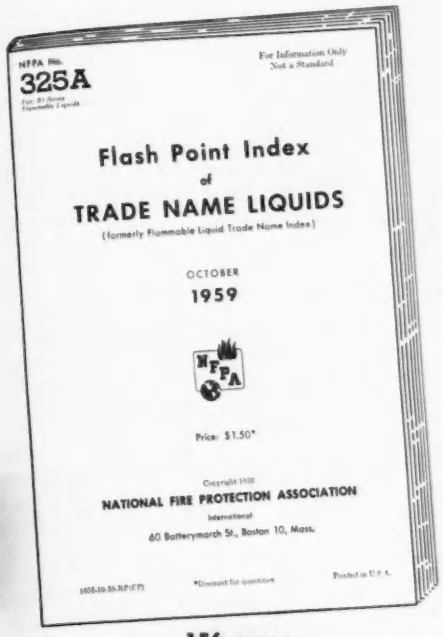

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this month's News and New Products

Two-Way Radio Is Part of Wearing Apparel

One of five models, here is the new Seiscor two-way radio personal unit of headset, built-on antenna, and microphone with transistorized transmitter-receiver unit and batteries in a compact belt-pack. Models meet F.C.C. requirements and are available for 27 or 42 megacycle operations — other frequencies made to order. Manufacturer stresses usefulness in high noise or poor visibility conditions. For free literature write to *Seiscor*, Division of Seismograph Service Corporation, Box 1590, Tulsa, Oklahoma.

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Want to identify homes and rooms of the aged, blind, bedridden and handicapped in your community? For free rescue marking kit write to *FD Products*, Department F-7, 514 West Englewood Avenue, Teaneck, New Jersey. . . . Life belt (pompier) hooks, one-half the weight of present steel hooks and twice the strength, are now made of aluminum by *Atlas Safety Equipment Company*, 179 North 10th Street, Brooklyn 11, New York. . . . Do you have the *H. K. Porter, Inc.* free catalog describing the HKP Fireman's Insulated Wire Cutter and "Forcible Entry" Heavy Duty Cutter? Write to Somerville 43, Massachusetts. . . . Practical information on gas mask selection is free on request to *Acme Protection Equipment Company*, 1279 Kalamazoo Street, South Haven, Michigan. . . . Get the facts on L-N Alternator-Generator Systems and end electrical failures. Write for literature to *Leece-Neville Company*, 1374 East 51st Street, Cleveland 3, Ohio.

A new, UL listed, fixed temperature fire detection thermostat called N-CO-STAT for semi-flush mounting is announced by *Notifier Corporation*, Lincoln 4, Nebraska. Ask for Bulletin SM–26–959

Now offered as a separate fire fighting unit is the John Bean 29 Fog Fire Fighting Gun. Write to *John Bean Division*, FMC Company, Lansing 4, Michigan. . . . A new design, six-man cab on a commercial chassis is now available from *American Fire Apparatus Company*, Main Street Road, Battle Creek, Michigan. . . . There is widespread interest in the new Bar-Way high pressure coupling for all types of fabric fire hose. For complete data, write *Bar-Way Manufacturing Company*, 2770 Summer Street, Stamford, Connecticut. . . . You can stay right up there where it's hot with the aid of Fyrumbrella. Contact *Fyrepel Products, Inc.*, Department A, Box 503, Newark, Ohio. . . . Help yourself to promotion with the correspondence course of instruction in fire prevention, fire protection and fire fighting available through *National Preparatory Institute*, 33B Sweetzer Terrace, East Lynn, Massachusetts.

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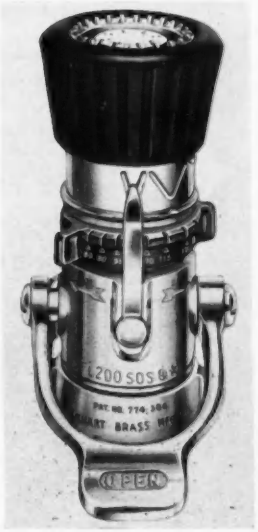

Constant Flow Nozzle

Elkhart Brass Manufacturing Company, Inc., Elkhart, Indiana, announces a new constant flow nozzle "Select-O-Flow" in 1½-in. size. Designed to handle variable gallonage from 60 to 125 gpm at 100 psi nozzle pressure, "Select-O-Flow" has a sleeve type gallonage indicator surrounding the nozzle barrel. By turning this sleeve the desired gallonage can be chosen. A stream indicator permits selection of narrow to wide fog patterns and straight stream.

First-Aid Kits

Two completely new fire department unit first-aid kits for cars, apparatus and rescue squads are announced by *A. E. Halperin Company, Inc.*, 75–87 Northampton Street, Boston 18, Massachusetts. Moisture and dust proof, these kits include the most modern first-aid items available. Ask for free descriptive circular.

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Contact *Boston Clip and Tag Company*, 48 Grove Street, Somerville 44, Massachusetts, before you restock on fire alarm register rolls. . . . That amazing Snorkel hydraulic lift is fully described in a pamphlet by *Pitman Manufacturing Company*, Department F, Grandview, Missouri. . . . More and more mobile floodlight units are using current supplied by 10 KW Kohler electric plants. For folder E-16, drop a card to *Kohler Company*, Kohler, Wisconsin. . . . Convert waste corner space to valuable storage with Lok-Tite brackets on 1½-in. pipe and 2- by 6-in. stringers. Contact *W-B Manufacturing Company*, Department F, 157 North Waco Street, Wichita, Kansas. . . . Five training films on the latest techniques for safe driving of fire apparatus are offered by *Cinesound Company*, 1037 North La Brea, Hollywood 38, California. . . . The "Straight Edge" Hose Cutter, newly developed by *Bell & Pihl Company*, Arlington 74, Massachusetts, can be a valuable addition to your maintenance shop.

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This film should be very helpful for fire fighters training for LP-Gas fires. It has excellent color, good narration and a fine, informative sequence of action that shows what to expect in this type of fire. The NFPA is distributing this film primarily for fire schools, fire service associations and industry. It is available on a purchase basis and can be shown with good effect year after year in training programs.

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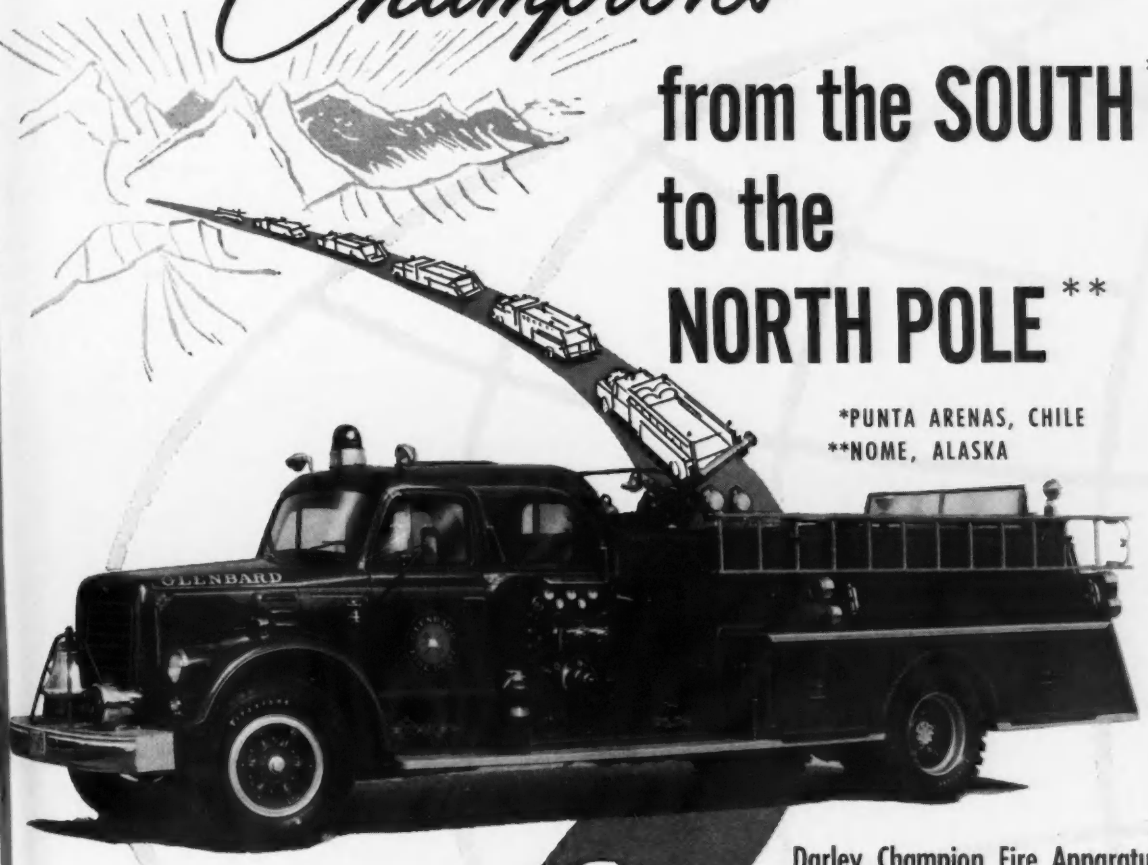

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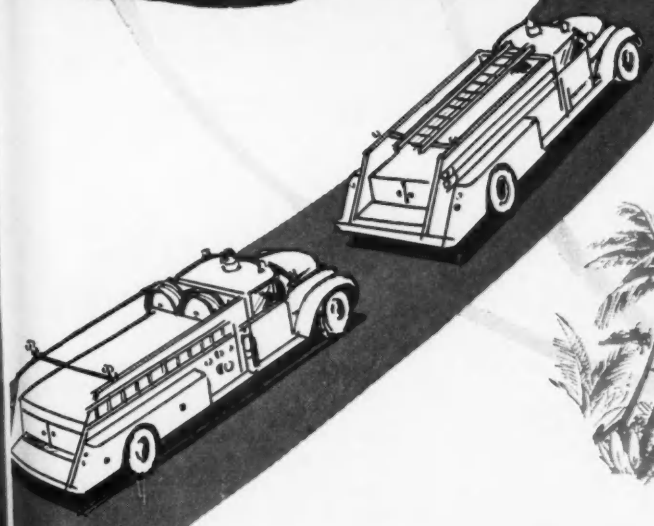

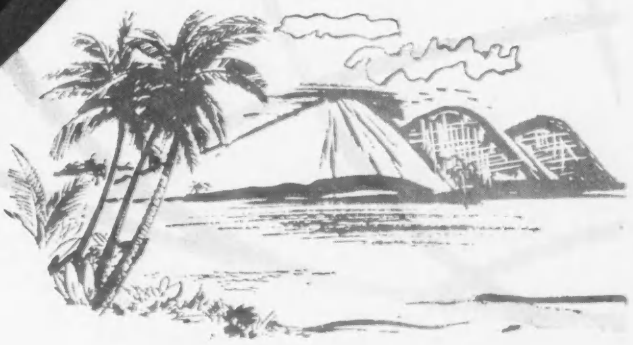

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